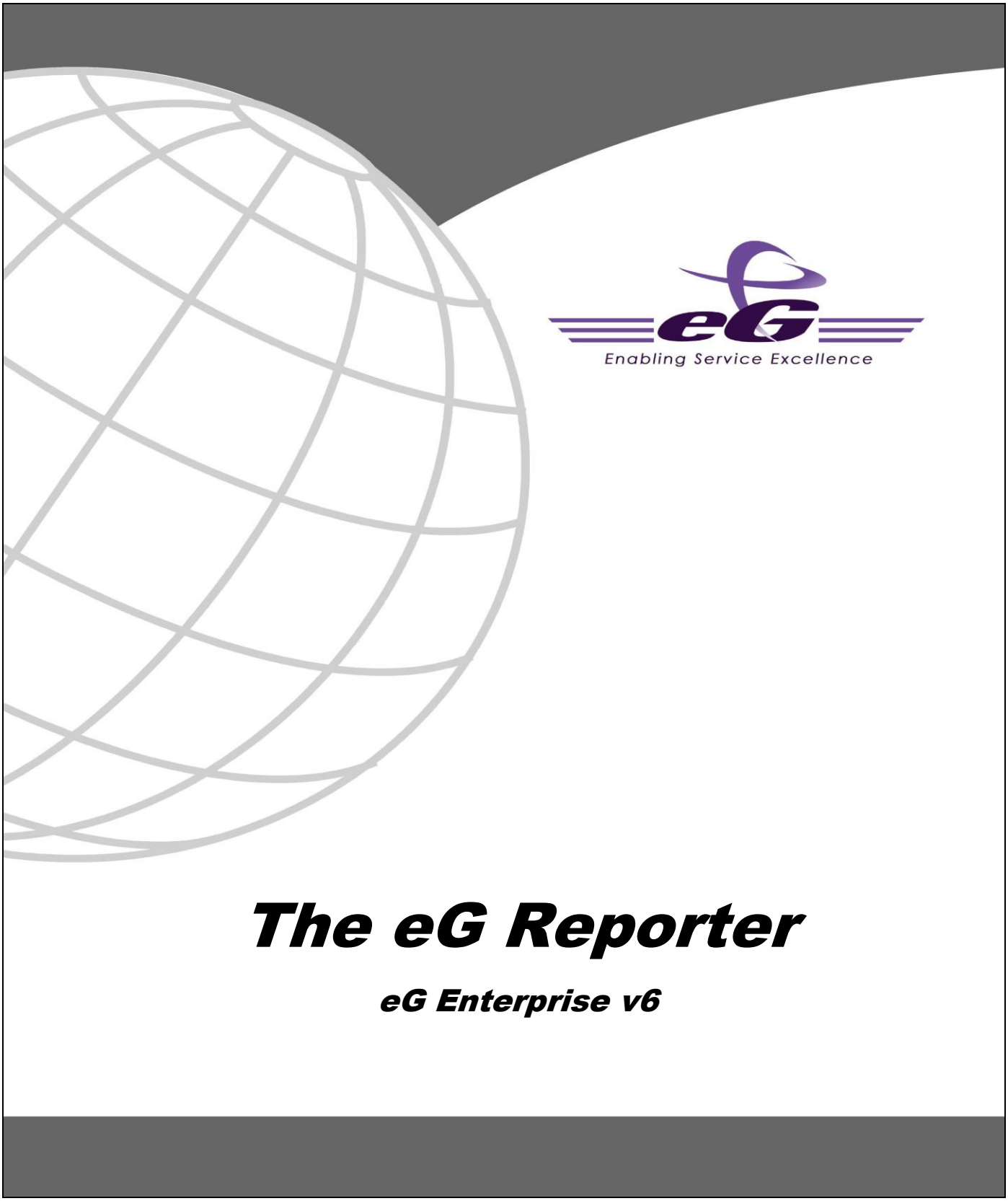

The eG Reporter

eG Enterprise v6

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1

The eG Reporter

For enhanced historical reports and analysis, eG Enterprise includes an optional eG Reporter solution. The eG Reporter offers comprehensive pre-canned and customizable reports of the availability, performance, and usage of the target infrastructure. Various types of reports are available via eG Reporter including:

- **Executive Summary reports**: These reports offer a service level summary for each component of the IT infrastructure. This summary depicts the percentage of time that a component has been problem free. The main intent of these reports is to help senior management of an organization identify which components or domains (i.e., component types) are most problem-prone in the IT infrastructure.
- **Operational KPI reports**: While executive reports provide a high-level overview of the performance of an infrastructure component, the operation reports provide detailed insights into specific measurements and how they compare with their threshold bounds. While a number of pre-canned reports are available for each component being monitored, administrators also have the flexibility to build customized reports.
- **Comparison reports**: While operation reports allow analysis of different metrics of a specific component, comparison reports can be used for cross-correlation - i.e., to compare different metrics across different components. For example, the response time of the network, server, database, application, etc. can be compared and plotted in the same report.
- **Measurement Snapshot reports**: These reports are ideal for post-mortem analysis. If an administrator is aware that a problem occurred in the past during a certain period of time, he/she can use the Snapshot reports to quickly identify which measurements for a specific component were not in conformance with their thresholds.
- **Consolidated Analysis reports**: Use these reports to assess the performance of chosen server farms/servers/services over time. Periodic analysis of overall performance enables administrators to accurately predict behavioral trends and sizing requirements, and thus perform effective capacity planning.
- **Citrix / VDI Reports**: These reports facilitate root-cause analysis and identification in Citrix/Terminal/VDI server farms. Thinclient administrators can use these reports to assess the resource utilization of specific applications in the farm, analyze user behavior across the farm, detect the open sessions in the farm, etc.
- **Compliance reports**: In order to comply with emerging standards such as HIPPA, Sarbanes Oxley, etc., IT infrastructure operators require a wide range of reports that reveal the service level achieved by a target environment, the duration of service downtimes, etc. To cater to these compliance requirements, the eG Reporter offers **Compliance** reports.
- **Virtualization reports**: To enable users to oversee the performance of their virtualized infrastructure over time, and to analyze the resource usage patterns of VMs and physical servers deployed on various virtualization platforms, eG Reporter now includes **Virtualization** reports.

Using eG Reporter, users can login from anywhere, at any time, and view reports. By seamlessly integrating with eG Enterprise, eG Reporter allows users to analyze any of thousands of metrics collected by the eG agents for trending, capacity planning, problem diagnosis, or service level audits.

To open the eG Reporter, click on the **Reporter** tab page.

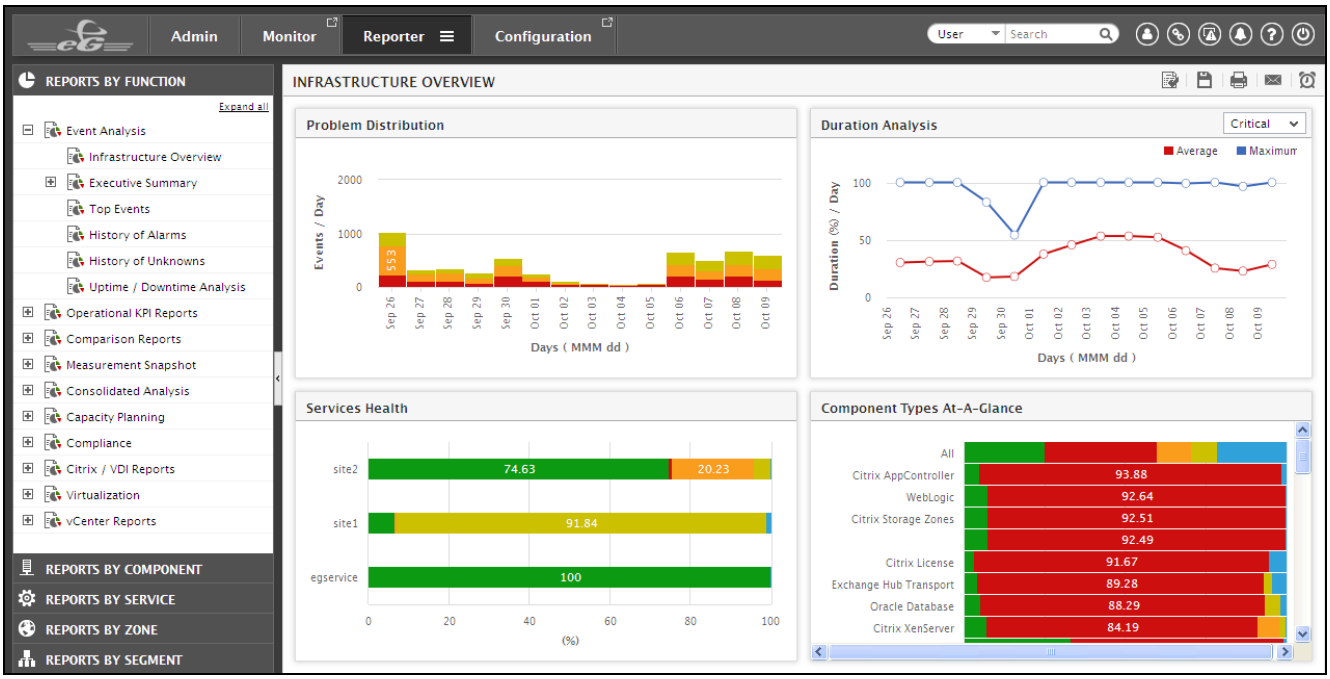


Figure 1.1: The eG Reporter Home page

The eG Reporter Home page provides an overview of the health of the entire monitored infrastructure. The eG Reporter home page is divided into a left panel and a context sensitive right panel. The left panel consists of a host of tree structures using which reports can be generated easily. Using this left panel, administrators can find all the reports that are applicable to say for example, a specific component type easily. These reports are grouped in an easy to understand manner, so administrators need not click in several places to see the reports of most interest to them. Reports specific to component groupings such as zones, segments, and services are also available. By default, the **REPORTS BY FUNCTION** tree will be expanded (see Figure 1.1). This document will navigate through the nodes of the **REPORTS BY FUNCTION** tree and explain the generation of each report within the nodes in detail.

The **MORE OPTIONS** drop down window (see Figure 1.2) will appear when the icon is clicked in Figure 1.1.

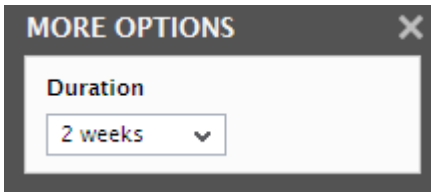


Figure 1.2: Changing the duration for displaying the infrastructure health

The **Duration** list box (see Figure 1.2) allows the health of the monitored infrastructure to be analyzed for any period (default is 2 weeks).

The default duration of the reports displayed in the eG Reporter home page can be changed using the **homeDuration** parameter in the **[MISC]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory). By default, this parameter is set to 2 weeks. However, it can be changed to a value in the range of 1 week to 4 weeks, or 1 month. For example, to set 1 week as the default duration, do as depicted below:

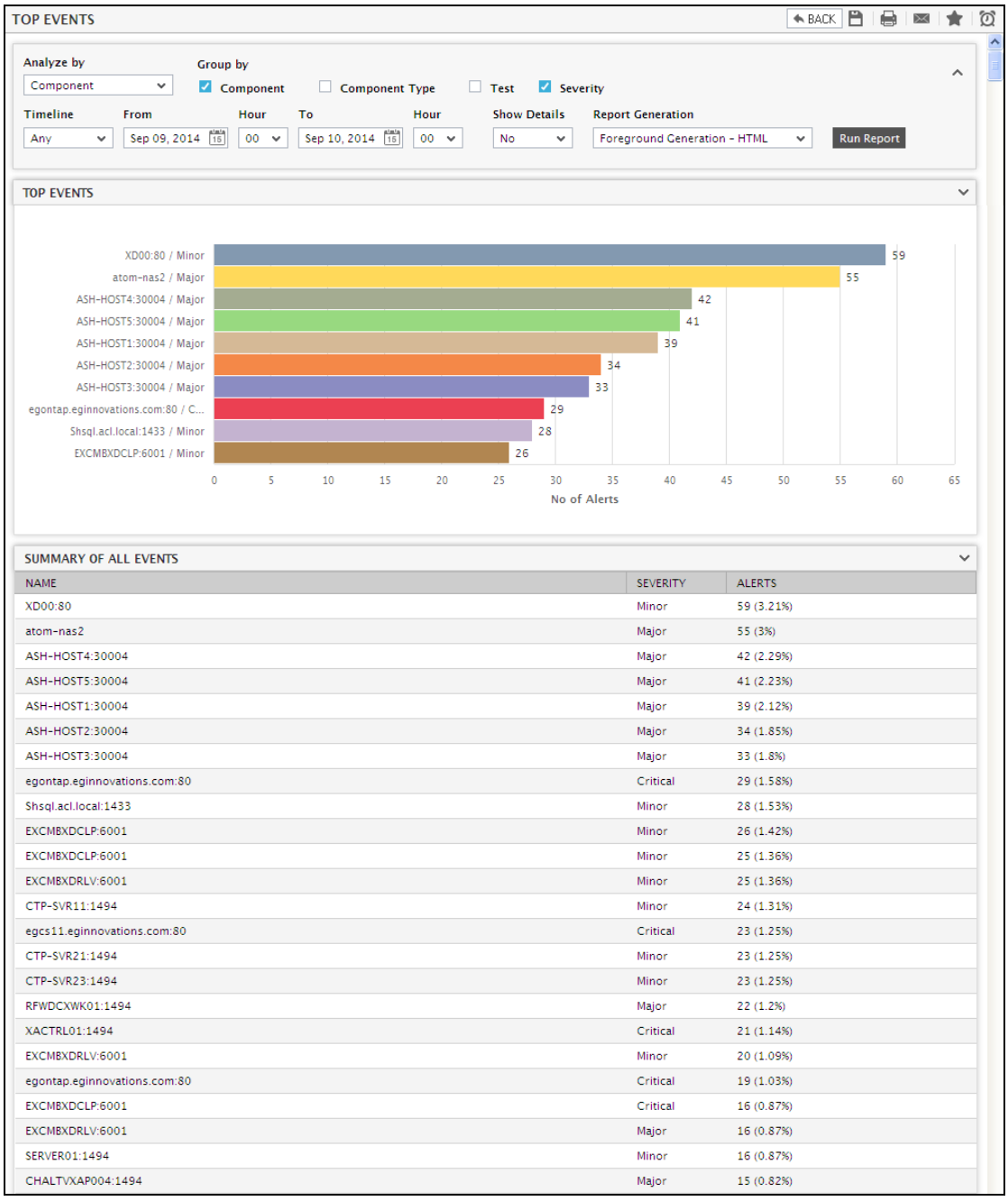
```
[MISC]
homeDuration=1week
```

Similarly, to set the default duration to 4 weeks, do as depicted below:

```
[MISC]
homeDuration=4weeks
```

The right panel displays the Infrastructure Overview. There are four sections in the **INFRASTRUCTURE OVERVIEW**. Each section sheds greater light on a critical aspect of the monitored environment.

1. The **Problem Distribution** section reveals how problem-prone the infrastructure has been during the period under consideration. The section displays bar graphs that indicate the number of critical, major, and minor problems that occurred on a daily basis during the selected period. By looking at this section, an administrator can determine the days when significant number of problems had occurred. Clicking on a particular division in a bar will lead you to Figure 1.3, which will reveal the **TOP EVENTS** report that provides a summary of events that affected infrastructure performance on that particular day.



NAME	SEVERITY	ALERTS
XD00:80	Minor	59 (3.21%)
atom-nas2	Major	55 (3%)
ASH-HOST4:30004	Major	42 (2.29%)
ASH-HOST5:30004	Major	41 (2.23%)
ASH-HOST1:30004	Major	39 (2.12%)
ASH-HOST2:30004	Major	34 (1.85%)
ASH-HOST3:30004	Major	33 (1.8%)
egontap.eginnovations.com:80	Critical	29 (1.58%)
Shsql.acl.local:1433	Minor	28 (1.53%)
EXCMBXDCLP:6001	Minor	26 (1.42%)
EXCMBXDCLP:6001	Minor	25 (1.36%)
EXCMBXDRLV:6001	Minor	25 (1.36%)
CTP-SVR11:1494	Minor	24 (1.31%)
egcs11.eginnovations.com:80	Critical	23 (1.25%)
CTP-SVR21:1494	Minor	23 (1.25%)
CTP-SVR23:1494	Minor	23 (1.25%)
RFWDCXWK01:1494	Major	22 (1.2%)
XACTRL01:1494	Critical	21 (1.14%)
EXCMBXDRLV:6001	Minor	20 (1.09%)
egontap.eginnovations.com:80	Critical	19 (1.03%)
EXCMBXDCLP:6001	Critical	16 (0.87%)
EXCMBXDRLV:6001	Major	16 (0.87%)
SERVER01:1494	Minor	16 (0.87%)
CHALTVXAP004:1494	Major	15 (0.82%)

Figure 1.3: Event Analysis report for a particular day

Note

A mismatch between the total number of events reflected by the **Problem Distribution** section of the Reporter home page and the **TOP EVENTS** report as such is inevitable. This is because, the former provides a layer-wise event summary, and the latter provides a test-wise summary.

2. Next to the **Problem Distribution** section in Figure 1.1 is the **Duration Analysis** section. This section shows the average duration and the maximum duration of events of a selected priority. For example, assume that an environment consists of 2 components - component A and component B. On a particular day, component A suffered **Critical** issues 5 times, with each issue lasting for about 2 hours. This implies that component A encountered critical issues for a total duration of 10 hours (2 x 5) that day. Component B on the other hand, suffered a critical issue at 12 noon, which was resolved at 4 PM, and another critical issue at 4.30 PM, which was resolved at 5.30 PM. Accordingly, it can be concluded that, component B suffered critical issues for a duration of 5 hours on that day. In such a case, the line graph in the **Duration Analysis** section will indicate that the average duration of **Critical** issues was 450 minutes (10+5=15/2=7.5 * 60=450) on this particular day, and the maximum duration was 600 minutes (i.e. 10 hours, which is the cumulative duration of all the critical events of component A; it is the maximum because the cumulative duration of critical events of component B is only 5).

   This is a good indicator of the efficiency of the administrative staff in fixing the problems identified by eG. By default, this graph displays the average and maximum durations of the **Critical** issues in the environment. To view the details of issues of another priority, select the priority from the list box adjacent to the section heading **Duration Analysis**. To zero-in on the component that encountered problems (of the chosen priority) which remained unresolved for the longest duration, click on the graph. An Executive Summary Report of the component for the chosen period will then appear (see Figure 1.4).

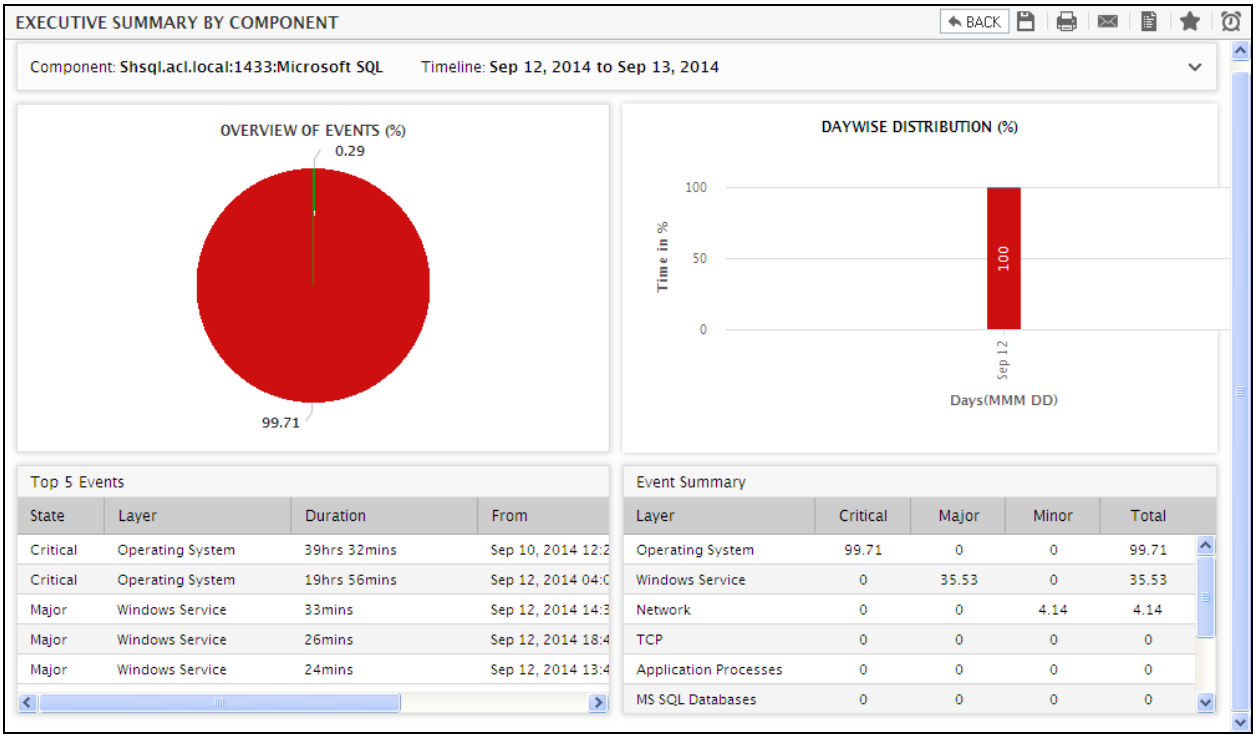


Figure 1.4: Executive Report of the Component that encountered unresolvable problems

By default, the **Duration Analysis** section of the eG Reporter Home page depicts the duration of events in minutes. Instead, if you prefer to view the percentage of time during a day problems (of a chosen priority) persisted in the target environment, set the **Daywise distribution reports in** flag in the **MONITOR SETTINGS** page (Configure -> Monitor Settings menu in the eG administrative interface) to **Percentage**.

3. Just below the **Problem Distribution** section is the **Services Health** section, which reveals the health of the segments/services/components in the environment during the specified period. This section consists of a horizontal bar graph, each bar of which denotes the percentage of time a segment/service/component has been in the Normal/Critical/Major/Minor/Unknown states. Clicking on a particular division in a bar will lead you to a page that displays the **Executive Suumary By Service Report** of the corresponding segment/service/component for the chosen **Duration** (see Figure 1.5).

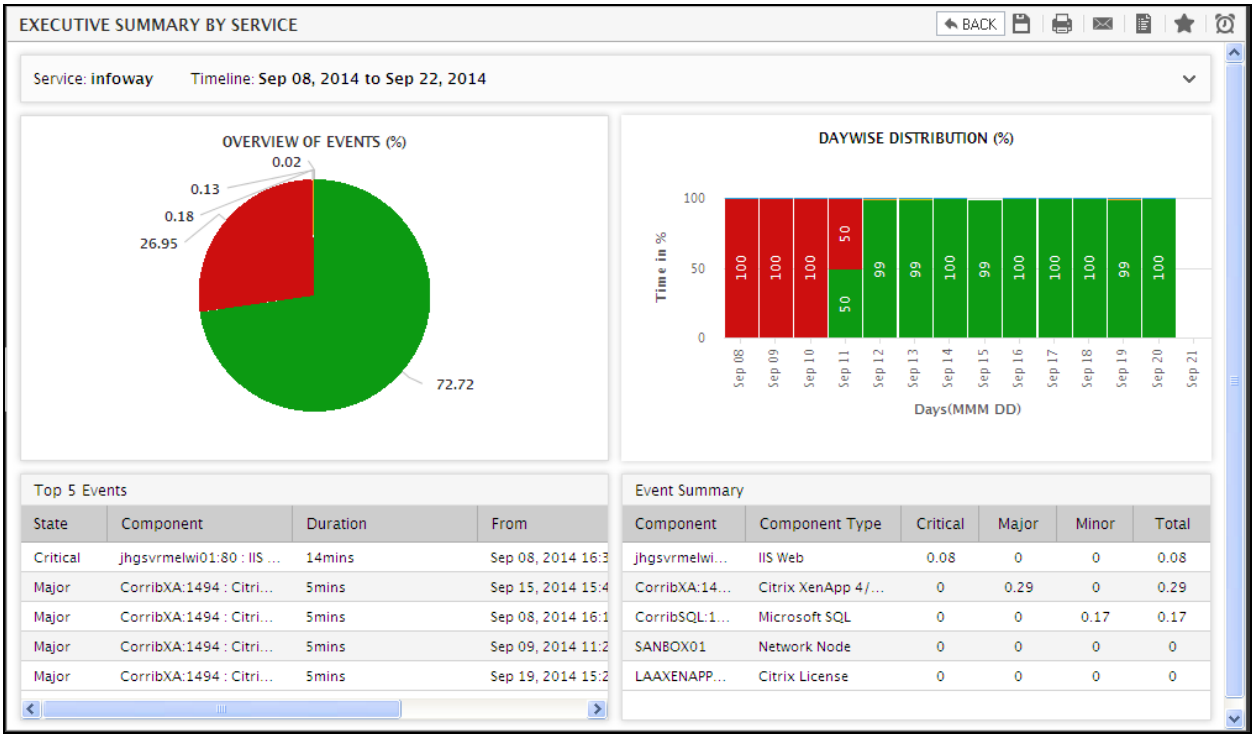


Figure 1.5: An Executive Service Report that appears upon clicking on a bar in the Services Health section of the Reporter Home

4. From the **Component Types At-A-Glance** section, one can quickly infer, how well/how poorly each of the component types have performed during the given period. Clicking on the bar corresponding to a component type in this section will lead you to a page that displays the **Executive Summary By Component Type Report** pertaining to that component type for the chosen **Duration** (see Figure 1.6).

This section will depict the health of services, only when one or more services have been configured in the environment. If only segments have been configured, then this section will reveal the health of all the segments during the designated period. If neither services nor segments exist, then a pie chart denoting the health of all the monitored components will appear.

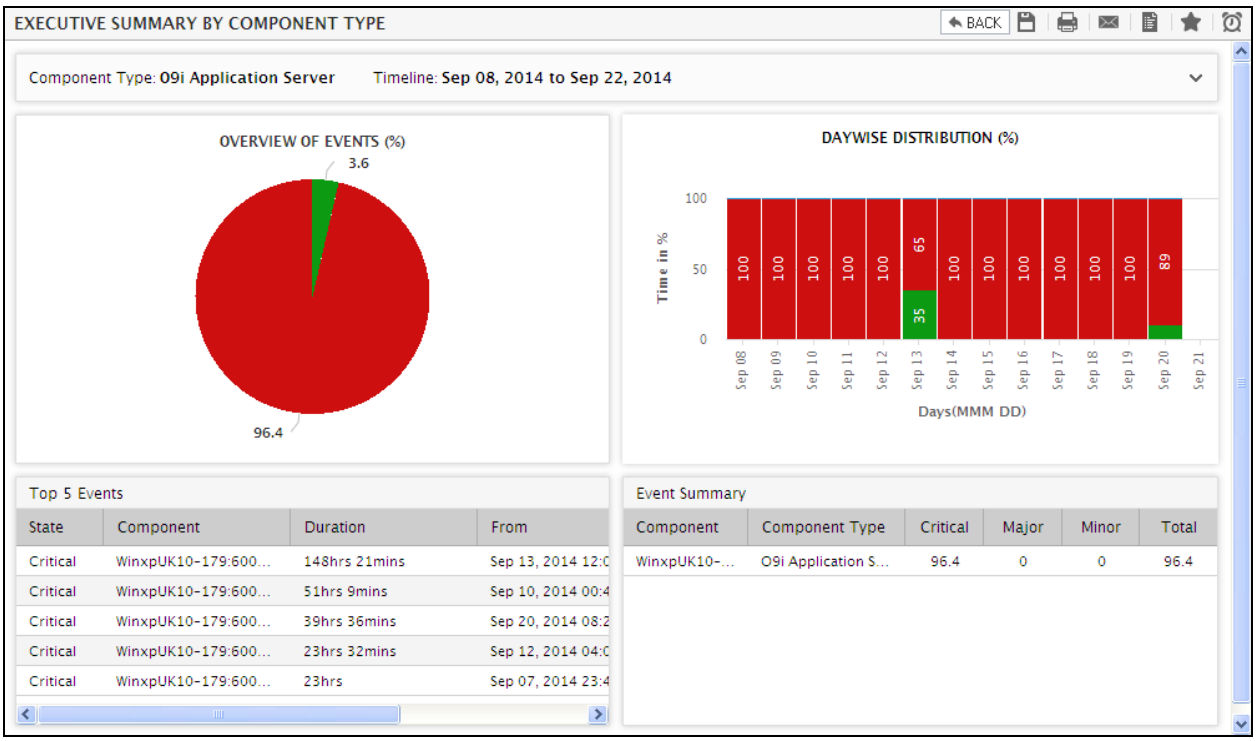

EXECUTIVE SUMMARY BY COMPONENT TYPE
BACK
Component Type: 09i Application Server
Timeline: Sep 08, 2014 to Sep 22, 2014
OVERVIEW OF EVENTS (%)
3.6
96.4
DAYWISE DISTRIBUTION (%)
Time in %
100
50
0
100 100 100 100 100 65 100 100 100 100 100 100 89
35
Sep 08 Sep 09 Sep 10 Sep 11 Sep 12 Sep 13 Sep 14 Sep 15 Sep 16 Sep 17 Sep 18 Sep 19 Sep 20 Sep 21
Days(MMM DD)
Top 5 Events
State Component Duration From
Critical WinxpUK10-179:600... 148hrs 21mins Sep 13, 2014 12:0
Critical WinxpUK10-179:600... 51hrs 9mins Sep 10, 2014 00:4
Critical WinxpUK10-179:600... 39hrs 36mins Sep 20, 2014 08:2
Critical WinxpUK10-179:600... 23hrs 32mins Sep 12, 2014 04:0
Critical WinxpUK10-179:600... 23hrs Sep 07, 2014 23:4
Event Summary
Component Component Type Critical Major Minor Total
WinxpUK10-... O9i Application S... 96.4 0 0 96.4

Figure 1.6: An Executive Summary By Component Type Report that appears when a Component Type's bar graph in the Reporter Home page is clicked

5. You can save the Reporter Home page as a PDF document by clicking on the button at the right top corner of Figure 1.1. Upon clicking, the following dialog box will appear:

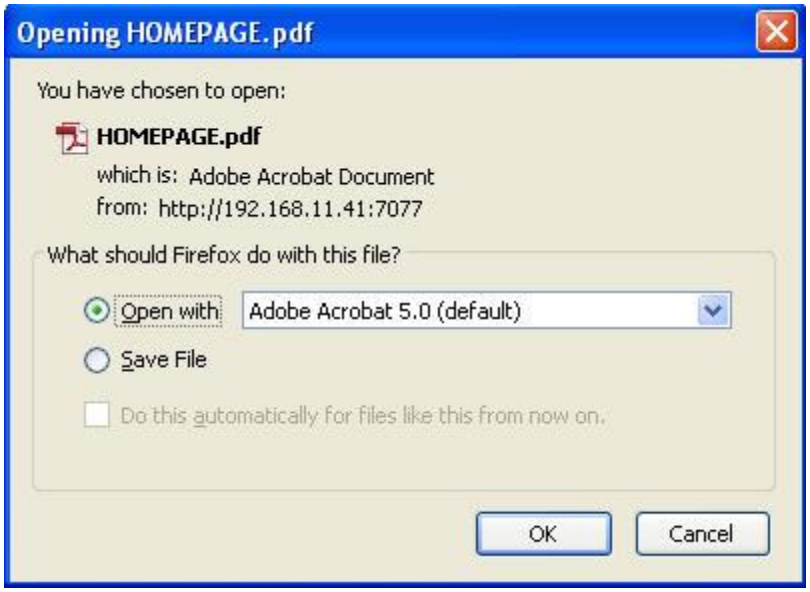


Figure 1.7: The File download dialog box

6. Selecting the **Open with** option in Figure 1.7 will save the report as a PDF file to a temporary folder, and automatically open the PDF. To save the file to a specific location in the local disk, select the **Save File** option and click the **OK** button. Doing so will open the **Save As** dialog box using which the name and location of the PDF file can be specified (see Figure 1.8). After specifying the required details, click the **Save** button in Figure 1.8 to save the report as a PDF.

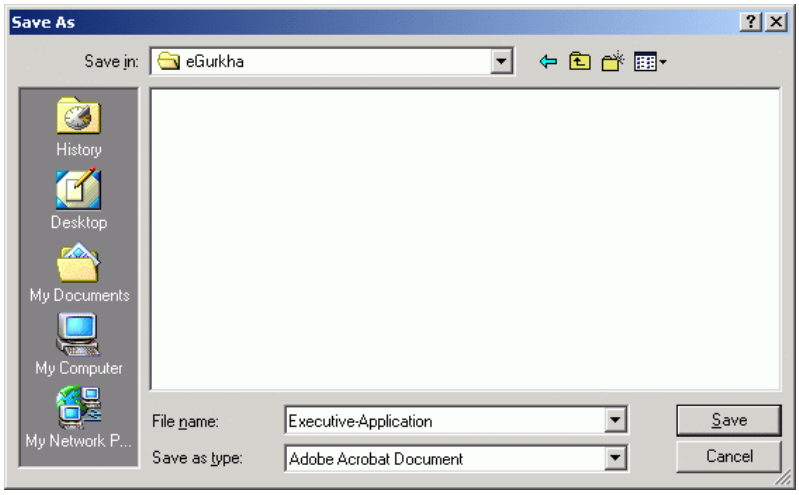


Figure 1.8: Saving the report as a PDF file

The PDF files that are created while saving a report as a PDF, will contain the **eG logo** by default. To ensure that all PDF files so created carry your company logo instead, change the **gif** file specification provided against the **pdfLogo** parameter in the **[MISC]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory). By default, this parameter is set to **logo.gif**, which refers to the eG logo. Instead, you can specify the name of the gif file containing your company's logo here, but before that, ensure that the image file is copied to the **<EG_INSTALL_DIR>\manager\tomcat\webapps\final\reporter\images** folder.

7. To print the report, click on the button in Figure 1.1. Upon clicking, you will be able to preview the graphs in a separate window. The preview will be followed by a **Print** dialog box, which allows you to select the printer and define its settings (see Figure 1.9).

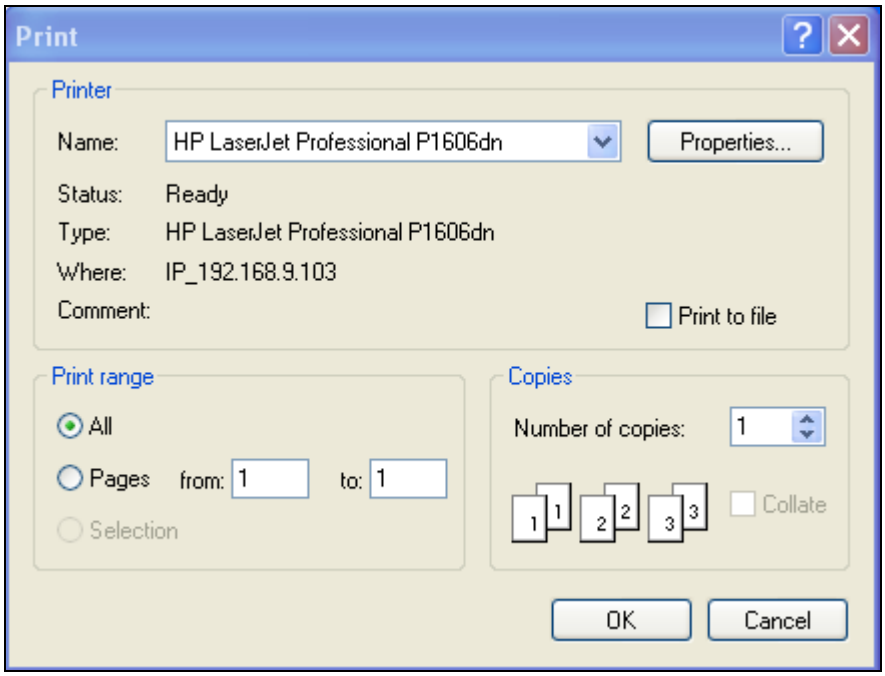


Figure 1.9: Defining the printer settings

8. Clicking on the **OK** button in Figure 1.9 will trigger the printing of the previewed report.

9. The eG Reporter component also facilitates mailing of the displayed reports directly to specific recipients. To achieve this, first, click on the button in Figure 1.1. Figure 1.10 will then appear, using which the mail IDs of the primary recipients, the mail IDs of the recipients to whom the reports need to be copied, etc. will have to be specified. Also, an appropriate **Subject** can be provided for the mail (see Figure 1.10).

Figure 1.10: Sending mails directly to specific recipients

10. Finally, click the **Submit** button in Figure 1.10 to send the reports to the specified recipients.

2

Getting Familiar with the eG Reporter User Interface

This chapter explains you in detail on getting familiar with the user interface of the **Reporter** module of the eG Enterprise Suite. Figure 2.1 provides you with an overview of the menu sequence tree of the Reporter module.

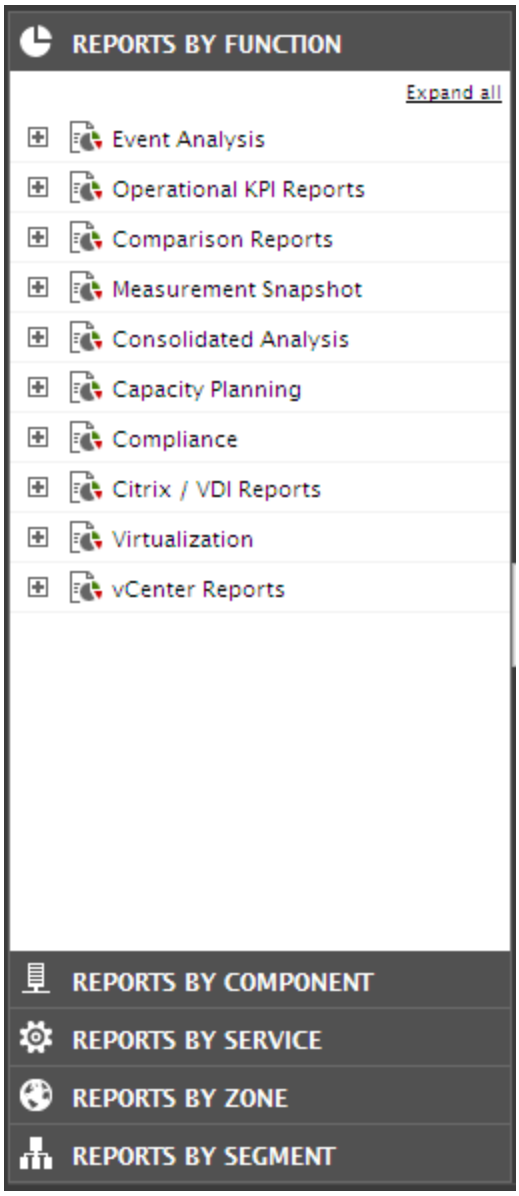


Figure 2.1: The Reporter menu sequence tree

Each section of the **Reporter** menu sequence is discussed in detail in the following chapters. The below table explains you briefly on the icons that are available at the right top corner of each Report generation page.

Icons	Purpose

	Clicking this icon will save the generated report
	Clicking this icon will print the generated report
	Use this icon to mail the generated report to specific individuals
	Use this icon to view the data points that have been plotted in the report
	Click on this icon to add the report as a favorite
	Click on this icon to schedule the printing/mailing of the generated report
	Click on this icon to save the generated report as a CSV file
	Click on this icon to change the default settings of the report using the **MORE OPTIONS** drop down window.

2.1 How to schedule printing/mailing of a generated report?

This section describes the step by step procedure involved in printing/mailing the report in detail:

1. The eG Reporter also provides a useful report scheduling capability that automates the process of printing and/or mailing specific reports (to specific individuals) at pre-defined intervals. To schedule the printing/mailing of the reports displayed in the **Reporter** home page, click on the button. In Figure 2.2 that appears next, provide a name for the schedule against the **Schedule Name** text box in.

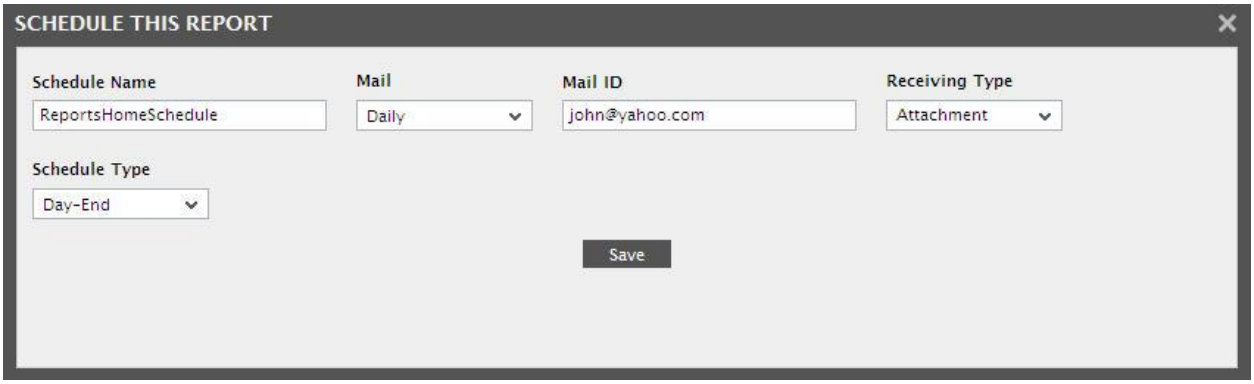


Figure 2.2: Adding a new schedule

2. To indicate how often the report would have to be mailed to a specific recipient, select a frequency from the

Mail list box. The options provided therein include: None, Daily, Weekly, Monthly, WeekEnd, and MonthEnd. If you select the **Weekly** option, you even get to select the exact day of the week on which you want the report mailed/printed, from the **Mail On** list. If you select the **Monthly** option from the **Mail** list, you can select the exact date of the month on which you want the report to be mailed/printed, from the **Mail On** list.

- By default, **WeekEnd** reports are mailed every Sunday. This default setting can however, be modified by editing the **eg_services.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory). The **ScheduleMailWeekend** parameter in the **[MISC_ARGS]** section of this file is set to **Sunday**, by default. If you so wish, you can specify any other day of the week against this parameter, as shown below:

```
[MISC_ARGS]

ScheduleMailWeekend=Friday
```

- Say, on September 24, 2014 (Wednesday), a report was generated with a **Timeline** of 2 weeks; later that day, the same report was scheduled to be mailed **Weekly**. This means that on the first day of the following week (which is Sunday - September 28, 2014), the report will be automatically generated based on the performance data collected during the last 2 weeks (i.e., for the period spanning September 14 to September 28), and mailed to the specified recipients. **Note that, if a report is set to be mailed 'Weekly', such a setting only ensures that the report is mailed once a week; it does not alter the Timeline of the original report. The same applies to 'Monthly' schedules**.

Now, let us take another example. Assume that on September 24, 2014 again, a report with a **Timeline** of 2 weeks was scheduled to be mailed every **WeekEnd** (which is say, Sunday). This means that on September 28, 2014 (Sunday), the report will be automatically generated for a **Timeline** of 1 week (spanning September 22 to September 28), and mailed to the specified recipients. **Note that 'WeekEnd' schedules not only affect the frequency with which reports are mailed, but also override the 'Timeline' of the original report. The same philosophy applies to "MonthEnd" schedules**.

- By default, scheduled mails are sent before trend computation begins. However, if need be, you can push schedule execution below trend computations - i.e., you can instruct the eG Enterprise system to mail reports after trend calculations are done. To ensure this, do the following:
  - Edit the **eg_services.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - In the **[MISC_ARGS]** section of the file, a **ScheduleReportsBeforeTrend** flag exists that is set to **yes**, by default. Change this to **no**, so that schedules are implemented after trending is completed.

Summary reports will not be generated properly if this option is set. Reports with measure graph, zone reports, comparison reports, etc., will be unaffected.

- You cannot **SCHEDULE** the automatic printing/mailing of reports with an **Any** timeline.

3. If the report need not be mailed but the report is to be printed, then select **None** from this list box. If the report is to be mailed to a specific recipient (i.e., if the **Mail** list box does not contain **None**), then mention the **Mail ID** of the recipient.

- To ensure that the reports are mailed to the specified recipients, the **SMTP mail host** and **eG Administrator mail ID** need to be properly configured in the eG administrative interface (using the *Alerts -> Mail Settings -> Server* option).
- When reports are sent by email, the body of the email will contain the reports so sent in HTML format. You can, if you so desire, send the report as an attachment by setting the **SendMailAsAttachment** flag to **Yes** (or **True**). This flag is available in the **[MISC_ARGS]** section of the **eg_services.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory).

4. Then, indicate the **Schedule Type**. You can indicate when report scheduling is to occur by picking an option from the **Schedule Type** list. To generate schedule reports at the end of every day, pick the **Day end** option from this list. To generate schedule reports at a configured time every day, pick the **Any time** option from this list, and then indicate the exact time of generation using the **Schedule at** time controls that then appear.
5. If a **Thin Client** report that is generated in the data format is scheduled for printing/mailing, an additional **Schedule Format** list box will appear in the **SCHEDULE THIS REPORT** pop up window (see Figure 2.3). By default, the **PDF** option is selected which implies that the generated report will be mailed to the recipient in the **PDF** format. To mail the report in CSV format select the **CSV** option from this list box.

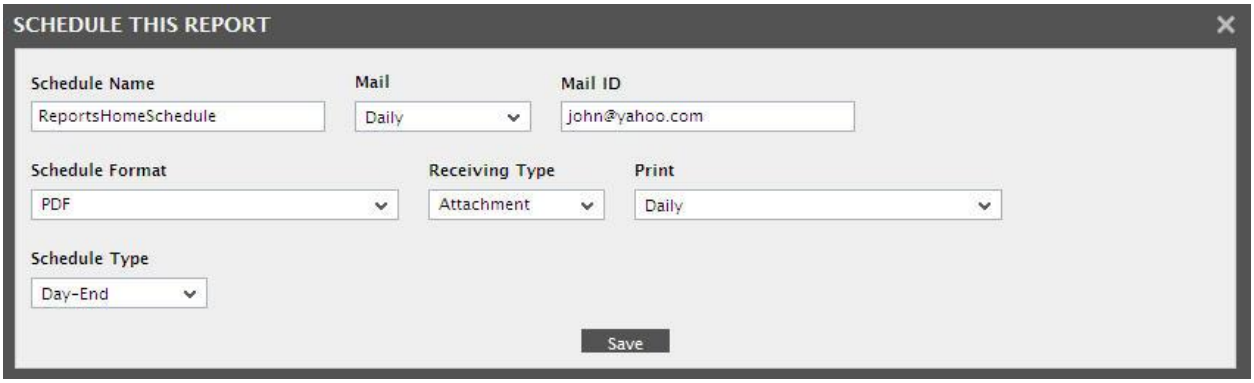


Figure 2.3: Adding a new schedule for a generated data report

6. By default, eG Reporter does not allow users to schedule the automatic printing of reports. If you want to schedule report printing, then set the **EnableSchedulePrint** parameter in the **[MISC_ARGS]** section of the **eg_services.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory) to **true** (default is **false**). Once this is done, then, a **Print** list will additionally appear in the **SAVE SCHEDULES** page. Indicate the frequency with which the report is to be printed by selecting an option from the **Print** list box. Here again, selecting **None** would ensure that the report is not printed. In order to print the report as well as email the report to the chosen recipients, then select an option from the **Mail** list and the **Print** list and specify the recipients in the **Mail Id** text box.

If a network printer is used for printing the reports, then ensure that the Tomcat service of the eG manager is configured to use a domain user's account. If only a local printer is used, then the Tomcat service can run using the default local system account.

7. By default, the details of the report for which you have scheduled printing/mailing will be listed under the **Details of Your Selection** section. Finally, click on the **SAVE** button to register the schedule. Doing so will reveal the following page that prompts you to click on the **Schedules** link.

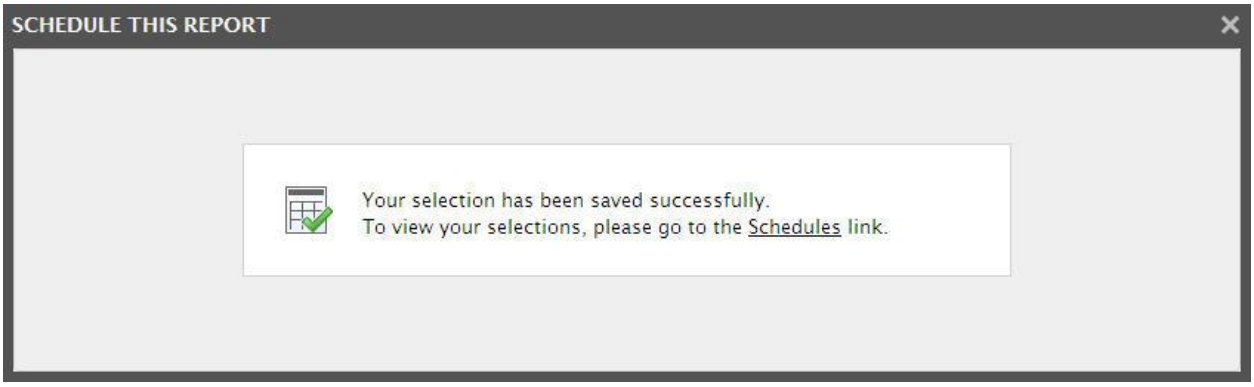

SCHEDULE THIS REPORT
Your selection has been saved successfully.
To view your selections, please go to the Schedules link.

Figure 2.4: Clicking on the **Schedules** link

8. Clicking on the **Schedules** link will bring up Figure 2.5. Note that Figure 2.5 will also appear when the *Options -> Schedules -> Configure* menu sequence in eG Reporter is followed.

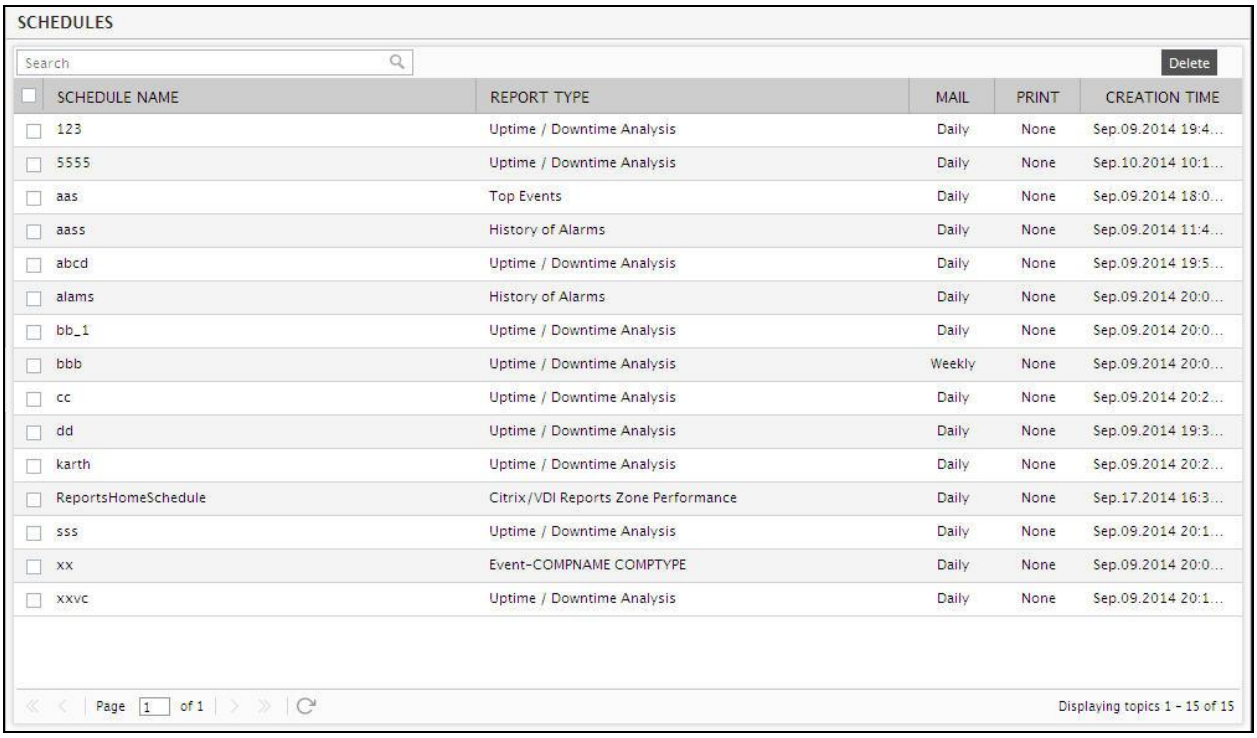

SCHEDULES
Search
Delete
SCHEDULE NAME
REPORT TYPE
MAIL
PRINT
CREATION TIME
123 Uptime / Downtime Analysis Daily None Sep.09.2014 19:4...
5555 Uptime / Downtime Analysis Daily None Sep.10.2014 10:1...
aas Top Events Daily None Sep.09.2014 18:0...
aass History of Alarms Daily None Sep.09.2014 11:4...
abcd Uptime / Downtime Analysis Daily None Sep.09.2014 19:5...
alams History of Alarms Daily None Sep.09.2014 20:0...
bb_1 Uptime / Downtime Analysis Daily None Sep.09.2014 20:0...
bbb Uptime / Downtime Analysis Weekly None Sep.09.2014 20:0...
cc Uptime / Downtime Analysis Daily None Sep.09.2014 20:2...
dd Uptime / Downtime Analysis Daily None Sep.09.2014 19:3...
karth Uptime / Downtime Analysis Daily None Sep.09.2014 20:2...
ReportsHomeSchedule Citrix/VDI Reports Zone Performance Daily None Sep.17.2014 16:3...
sss Uptime / Downtime Analysis Daily None Sep.09.2014 20:1...
xx Event-COMPNAME COMPTYPE Daily None Sep.09.2014 20:0...
xxvc Uptime / Downtime Analysis Daily None Sep.09.2014 20:1...
Page 1 of 1
Displaying topics 1 - 15 of 15

Figure 2.5: Viewing the list of schedules

9. Figure 2.5 provides the details of all the existing schedules (including the newly added schedule). Clicking on a **SCHEDULE NAME** here, will open Figure 2.2. Using this page, you can modify any of the displayed schedule details, and then click the **SAVE** button therein to save the changes. Additionally, you can modify the details of the report that is scheduled from this page. To do so, click on the **Click here to modify your selection** link available against the **Details of Your Selection** section. This will lead you to the report generation page where you can modify the details of the scheduled report.

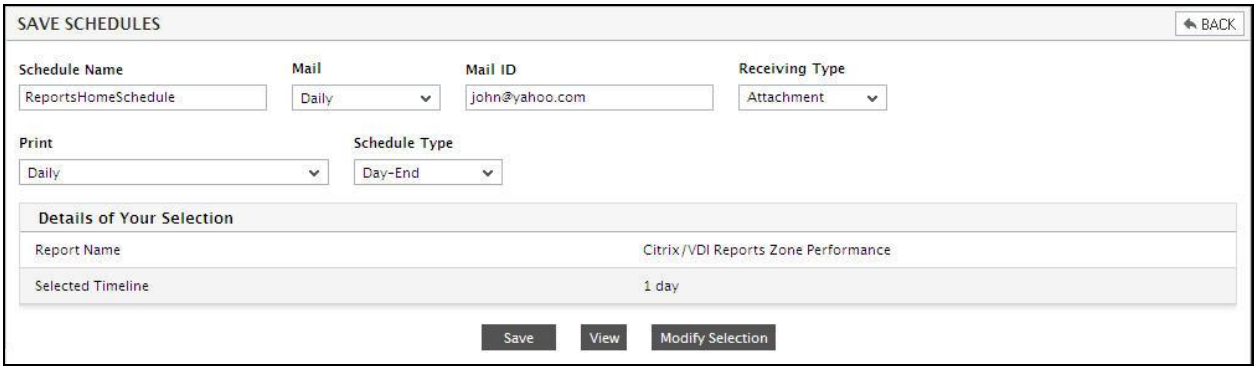


Figure 2.6: Link to modify your scheduled report details

10. To delete a schedule, just select the check box corresponding to the schedule to be deleted (see Figure 2.5), and then, click the **DELETE** button. To select all the schedules in a page for deletion, select the check box against the **SCHEDULE NAME** at the top of the page. In the **SCHEDULES** page, if the number of existing schedules crosses 15, then the schedules list will be split across pages. Also, a **Page** text box will be available at the bottom of every page. To go to a particular page, specify the page number in the text box and click on the

Enter button in your keyboard. Page navigation can also be performed using the arrow buttons available at the bottom of every page. The purpose of each arrow button is explained below:

Button	Purpose
«	Click to go to the first page
‹	Click to go to the previous page
»	Click to go to the last page
›	Click to go to the next page

11. You can also optionally configure the eG Enterprise system to save the reports that are scheduled to be emailed and/or printed (as the case may be) as PDF files on the eG manager host. By default, this capability is disabled. To enable the capability, edit the **eg_services.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory), and set the **SaveScheduleReport** flag in the **[MISC]** section to **yes**. Once this flag is turned on, then all scheduled reports will be automatically saved as PDF files in the **<EG_INSTALL_DIR>\manager\scheduledReports** folder, by default. You can even override this default location by specifying a different location against the **SaveSchedulePath** parameter in the **[MISC]** section. To view the reports so saved, follow the *Options -> Schedules -> View Reports* menu sequence. Figure 2.7 will then appear. Suppose, if you do not wish to receive the report by email but wish to save the report as PDF on the eG manager host, then specify a mail frequency other than **None** in the **Mail** list and omit the **Mail Id** field (leave it as blank). This will ensure you that the email is not sent but the report is saved to the eG manager host based on the mail frequency chosen by you in the **Mail** list. In some cases, administrators may want to email and print the report at the same time. To do so, just choose a frequency for generating the report from both the **Mail** and **Print** lists and specify the **Mail Id** to which the report is to be emailed. This will help to keep track of the report on the eG manager host as well as the inbox of the mail recipient.

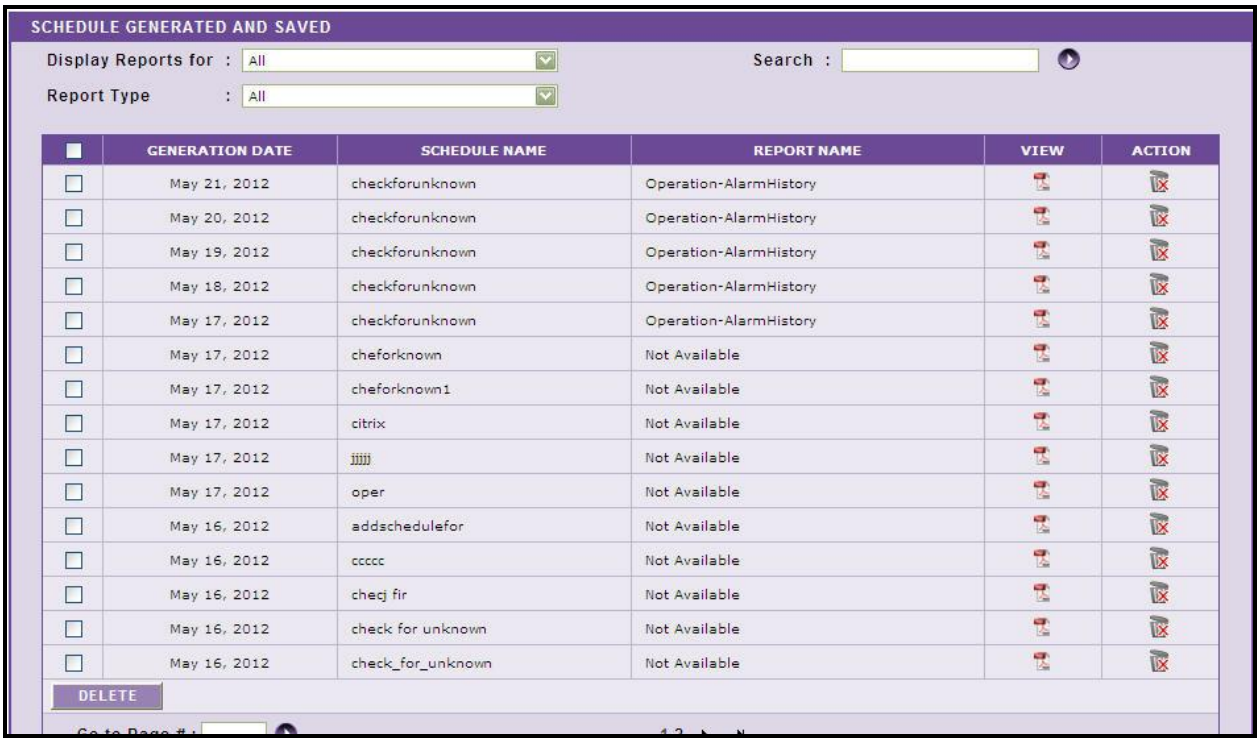

SCHEDULE GENERATED AND SAVED
Display Reports for : All
Search :
Report Type : All
GENERATION DATE
SCHEDULE NAME
REPORT NAME
VIEW
ACTION
May 21, 2012 checkforunknown Operation-AlarmHistory
May 20, 2012 checkforunknown Operation-AlarmHistory
May 19, 2012 checkforunknown Operation-AlarmHistory
May 18, 2012 checkforunknown Operation-AlarmHistory
May 17, 2012 checkforunknown Operation-AlarmHistory
May 17, 2012 cheforknown Not Available
May 17, 2012 cheforknown1 Not Available
May 17, 2012 citrix Not Available
May 17, 2012 jjjjj Not Available
May 17, 2012 oper Not Available
May 16, 2012 addschedulefor Not Available
May 16, 2012 ccccc Not Available
May 16, 2012 checj fir Not Available
May 16, 2012 check for unknown Not Available
May 16, 2012 check_for_unknown Not Available
DELETE

Figure 2.7: Viewing scheduled reports saved as PDF files

12. Figure 2.7 displays all saved scheduled reports by default. If you want to view only those reports that were scheduled to generate on a particular day, select that day from the **Display Reports for** list. You can filter the list further by picking a **Report Type**.

13. If required, you can even use the **Search** option to search for a particular report. In this case, type the whole or part of the **SCHEDULE NAME** of that report in the **Search** text box and click the right-arrow button alongside. This will automatically list all those scheduled reports with **SCHEDULE NAMES** that embed the specified **Search** string.

14. To view any of the scheduled reports as a PDF file, click the **VIEW** button that corresponds to that report in Figure 2.7. To delete any of the generated PDF documents, click on the **ACTION** icon that corresponds to it in Figure 2.7.

15. To delete multiple saved schedules at one shot, select the check boxes that precede each of the PDFs and click the **DELETE** button.

16. Also, if the number of scheduled reports saved as PDF crosses 15, then the list of saved schedules will be split across pages. Also, a **Page** text box will be available at the bottom of every page. To go to a particular page, specify the page number in the text box and click on the **Enter** button in your keyboard. Page navigation can also be performed using the arrow buttons available at the bottom of every page. The purpose of each arrow button is explained below:

Button	Purpose
«	Click to go to the first page
‹	Click to go to the previous page
»	Click to go to the last page
›	Click to go to the next page

Troubleshooting Tips:

Why does the eG Manager installed on a VM skip the generation of scheduled reports often?

When the eG Manager installed on a VM takes too long to time-synchronize with the virtual host on which it is running, then the report schedules configured for **Any** time periods on this manager were skipped often. In order to resolve this issue, set the **AdjustAnyTimeScheduleDate** flag that is available in the **[MISC]** section of the **eg_report.ini** file in the **<eg_install_dir>\manager\config** directory to **Yes**. By default this flag is set to **No**. Now specify a time duration (in minutes) against the **CheckScheduleBeforeMin** parameter. By default, this is set to 30 minutes. This indicates that if the **AdjustAnyTimeScheduleDate** flag is set to **Yes**, then, before executing a report schedule, the eG manager checks whether any schedules were skipped during the last 30 minutes (by default), and if so, runs that schedule as well. This way, reports will be emailed as per schedule despite delays in time sync-up between the virtual host and the VM running the eG manager.

2.2 How to save the report as a favorite?

This section explains the step by step procedure involved in saving a generated report as a favorite.

To allow users to quickly access key reports, the eG Reporter allows users to save their frequently accessed reports as **FAVORITES**. To achieve this, first, click on the **FAVORITES** button. This will result in the display of the **SAVE FAVORITES** page (see Figure 2.8). This page will display the report conditions mentioned in Figure 2.8. Now, give a **Name** to the report.

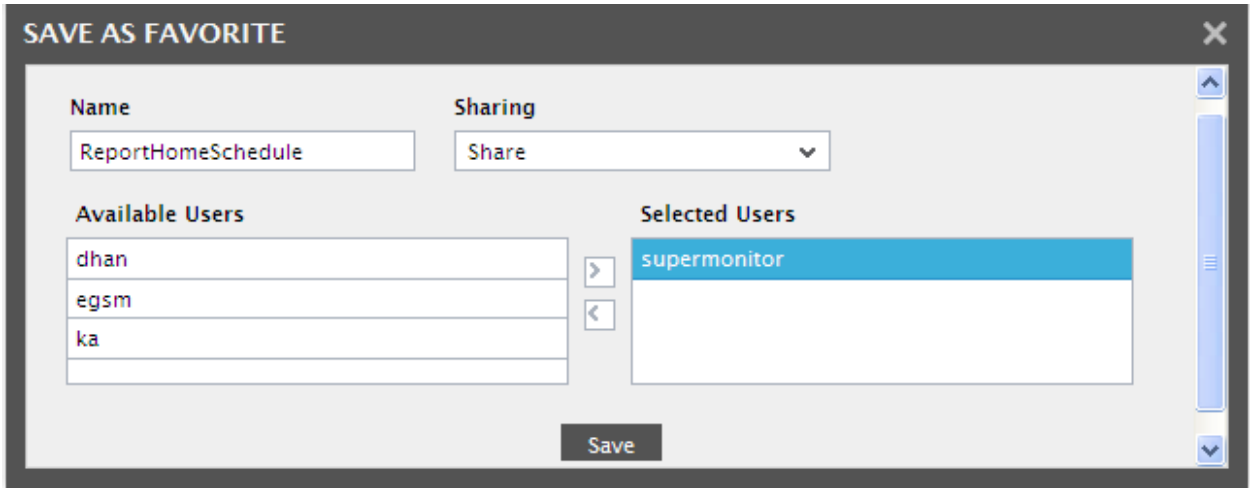


Figure 2.8: Specifying the Report Name under which the report conditions are to be saved

1. To facilitate collaboration and knowledge sharing among administrators, eG Enterprise now allows users the flexibility to share useful favorites they create with other users. For sharing a favorite report, you need to first set a share type by selecting the desired option from the **Sharing** list box in Figure 2.8. The options are as follows:

   - **Private**: If you set a favorite as **Private**, then all other users to the eG Enterprise system will be denied access to that favorite. Only the creator of the favorite will be able to access it.
   - **Public**: If you set the favorite as **Public**, then only users with the following rights will have access to it:
     - Users with access to all the managed elements in the environment
     - Users with access to the segment/service/zone/component for which the favorite report was generated

- Assume that a *Zone* report for a *Default* zone was added to **FAVORITES** and allowed **Public** access. Say, a zone named *MyZone* was later created, to which 2 independent components were added. A *user* named *john* was also created, who was granted monitoring rights to *MyZone* alone. This means that user *john* can monitor only the 2 independent components that are part of *MyZone*. This user, upon logging in, will not be able to access the report for the *Default* zone that was added to **FAVORITES**, in spite of the **Public** access. This is because, for user *john* a *Default* zone does not exist. eG Enterprise automatically creates a *Default* zone only when the target environment consists of **components that are not part of any other zone**. User *john's* environment however consists of only the 2 independent components that are already part of *MyZone*; this eliminates the need for a *Default* zone, and thus explains why user *john* does not have access to the favorite report for the *Default* zone.
- If a favorite report has been allowed **Public** access, then users whose monitoring scope does not include the component/segment/service/zone for which the report was generated will not be allowed access to that favorite.

   - **Share:** On the other hand, if you choose the **Share** option from the **Sharing** list, then you can pick and choose the users who need to be granted access to that view. To map users to a view, do the following:

- Select the users to be granted access from the **Available Users** list box.
- Then, click on **Grant** to grant the selected users access to the favorite. Doing so shifts the selection to the **Selected Users** list.
- To revoke the access permission granted to a user, you can select the user from the **Selected Users** list, and click the **Revoke** button.
- Finally, click on **Update** to save the changes.

➢ Assume that a *Zone* report for a *Default* zone was added to **FAVORITES**. Say, a zone named *MyZone* was later created, to which 2 independent components were added. A *user* named *john* was also created, who was granted monitoring rights to *MyZone* alone. This means that user *john* can monitor only the 2 independent components that are part of *MyZone*. Also, assume that this user was allowed **Share** access to the favorite report for the *Default* zone.

However, when user *john* logs into eG Reporter, he will find that he is not able to view the favorite report for the *Default* zone that was shared with him. This is because, for user *john*, a *Default* zone does not exist. eG Enterprise automatically creates a *Default* zone only when the target environment consists of **components that are not part of any other zone**. User *john's* environment however consists of only the 2 independent components that are already part of *MyZone*; this eliminates the need for a *Default* zone, and thus explains why user *john* does not have access to the favorite report for the *Default* zone.

➢ If a user is allowed **Share** access to a favorite report, but he/she does not have the privilege to monitor the component/segment/service/zone for which the report was originally generated, then the user will not be able to access the report, in spite of the **Share** access.

➢ A user without access to **eG Reporter** cannot view any of the favorites shared with him/her.

➢ A favorite can be deleted only by the user who creates it. The shared users on the other hand, can only view the favorites, and cannot delete them.

---

2. Finally, click on **SAVE** to save the favorite.
3. When this is done, the following message (see Figure 2.9) will appear indicating that the **Report Name** has been automatically added to the **FAVORITES** list.

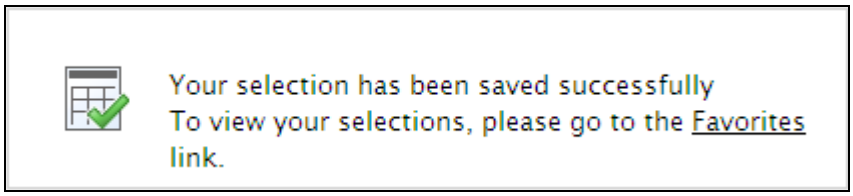


Figure 2.9: A message stating that the Report Name has been saved successfully

Clicking on the **View Favorites** option from the **FAVORITES** tile of the eG Reporter will reveal a list of **FAVORITE NAME** comprising of report conditions saved for future use (see Figure 2.10). Note that this page will also appear if the **Favorites** link in Figure 2.9 is clicked. If too many favorites are listed in this page, you can quickly search for a particular favorite using the **Favorite Search** text box in this page. Specify the whole/part of the favorite name to search for in the **Search** text box, and click the button adjacent to it. All favorite names that embed the specified string will then appear in this page.

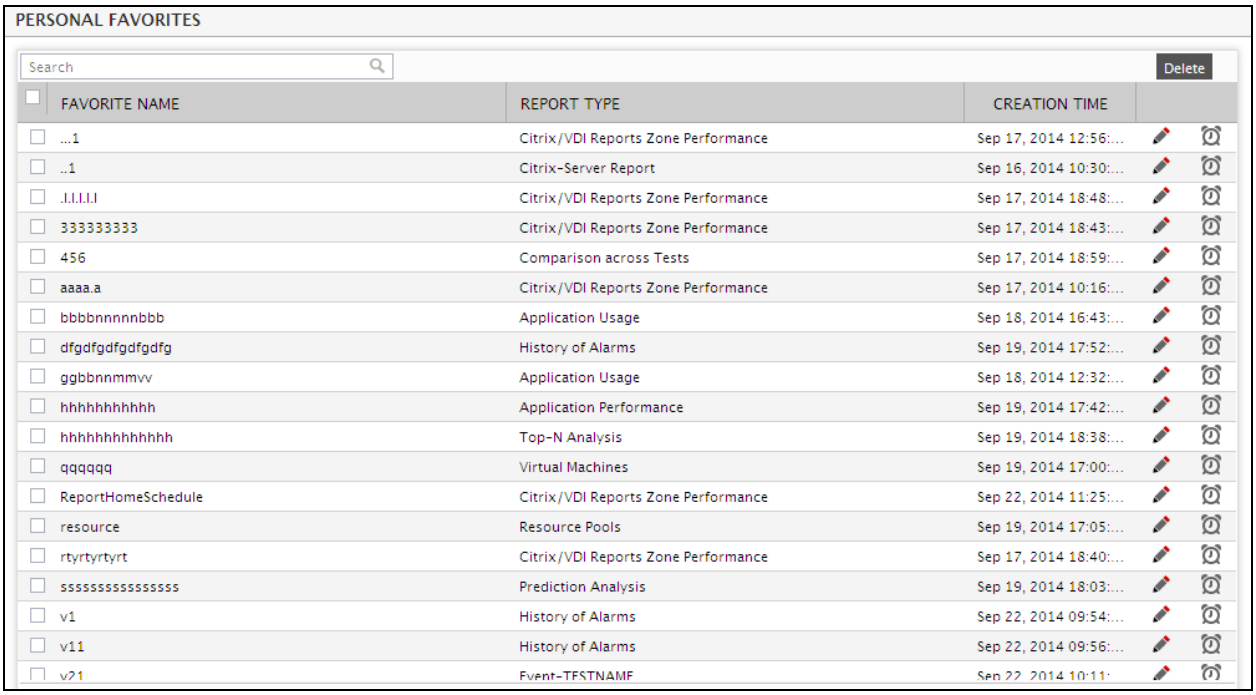

PERSONAL FAVORITES
Search
Delete
FAVORITE NAME
REPORT TYPE
CREATION TIME
...1 Citrix/VDI Reports Zone Performance Sep 17, 2014 12:56:...
..1 Citrix-Server Report Sep 16, 2014 10:30:...
.I.I.I.I Citrix/VDI Reports Zone Performance Sep 17, 2014 18:48:...
333333333 Citrix/VDI Reports Zone Performance Sep 17, 2014 18:43:...
456 Comparison across Tests Sep 17, 2014 18:59:...
aaaa.a Citrix/VDI Reports Zone Performance Sep 17, 2014 10:16:...
bbbbnnnnnbbb Application Usage Sep 18, 2014 16:43:...
dfgdfgdfgdfgdfg History of Alarms Sep 19, 2014 17:52:...
ggbbnnmmvv Application Usage Sep 18, 2014 12:32:...
hhhhhhhhhhh Application Performance Sep 19, 2014 17:42:...
hhhhhhhhhhhhh Top-N Analysis Sep 19, 2014 18:38:...
qqqqqq Virtual Machines Sep 19, 2014 17:00:...
ReportHomeSchedule Citrix/VDI Reports Zone Performance Sep 22, 2014 11:25:...
resource Resource Pools Sep 19, 2014 17:05:...
rtyrtyrtyrt Citrix/VDI Reports Zone Performance Sep 17, 2014 18:40:...
sssssssssssssss Prediction Analysis Sep 19, 2014 18:03:...
v1 History of Alarms Sep 22, 2014 09:54:...
v11 History of Alarms Sep 22, 2014 09:56:...
v21 Event-TESTNAME Sep 22, 2014 10:11:...

Figure 2.10: List of Report Names

4. If other users have shared their favorites with you, then details of those favorites will be listed separately in the **Favorites Shared by other Users** section as depicted in the Figure 2.10. This section provides the name of the shared favorite. Against every **FAVORITE NAME**, it displays the user who originally created the favorite and shared it with the current user in the **SHARED BY** column. The report type of the favorite is listed in the **REPORT TYPE** along with the time at which the favorite was created in the **CREATION TIME**. To hide the unnecessary shared favorites select the favorite you want to hide by providing a checkmark in the corresponding check boxes. Now click on **Hide Selected Favorites**. Doing so ensures that the chosen favorite as hidden as depicted in the Figure 2.11.

Figure 2.11: Selecting the favorites to be hidden

5. If the favorites run across multiple pages, then a **Page** text box will be available at the bottom of every page. To go to a particular page, specify the page number in the text box and click on **Enter** button in your keyboard. Page navigation can also be performed using the arrow buttons available at the bottom of every page (see Figure 2.11). The purpose of each arrow button is explained below:

Button	Purpose
«	Click to go to the first page
‹	Click to go to the previous page
»	Click to go to the last page
›	Click to go to the next page

To reuse a favorite, the user would just have to click on the **FAVORITE NAME** displayed in Figure 2.11. Upon clicking, Figure 2.11 will reappear. To delete a favorite, just select the check box before the favorite to be deleted (see Figure 2.11), and then, click the **DELETE** button. To select all the favorites in a page for deletion, select the check box adjacent to the **FAVORITE NAME** at the top of the page.

3

Report Configuration

For enhanced historical reports and analysis, eG Enterprise includes an optional eG Reporter solution. The eG Reporter offers comprehensive pre-canned and customizable reports of the availability, performance, and usage of the target infrastructure.

Basically, the Executive, Comparison, and Snapshot reports do not require configuration by the eG administrator. All other reports generated by the eG Enterprise suite requires configuration. The **Reporter** option of the **Settings** tile that appears when the icon against the **Admin** tab is clicked, permits administrators to customize the reports. This option comprises of the following sub-menus:

- Default Reports
- SpecificReports
- User Reports
- Consolidated Reports
- Capacity Planning Reports

eG Enterprise includes a number of pre-canned operation report templates. These templates define the set of metrics that are plotted together on the same timeline for cross-correlation and analysis. The menu options listed above provide various ways of overriding the defaults.

3.1 Default Reports

This option provides a way for an administrator to refine the default report templates provided with eG Enterprise. To configure default reports, first, select the **Default Reports** option by following the menu sequence: *Admin -> Settings -> Reporter*. Doing so will reveal the following page (see Figure 3.1).

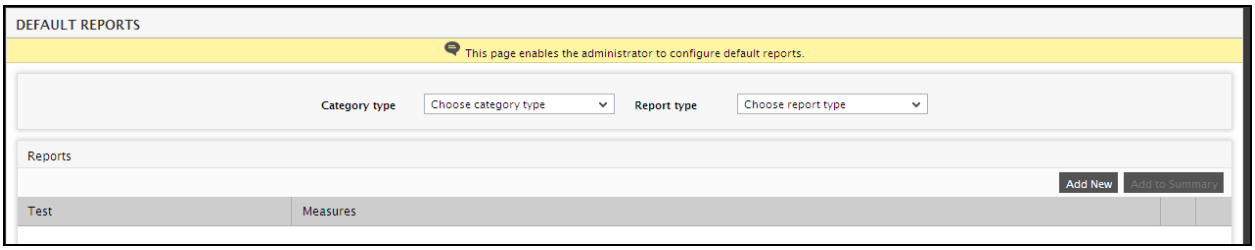


Figure 3.1: The eG Default Reports page

Clicking the Add New button in Figure 3.2 will reveal Figure 3.2 using which you can add the measures of your choice for configuring the report templates.

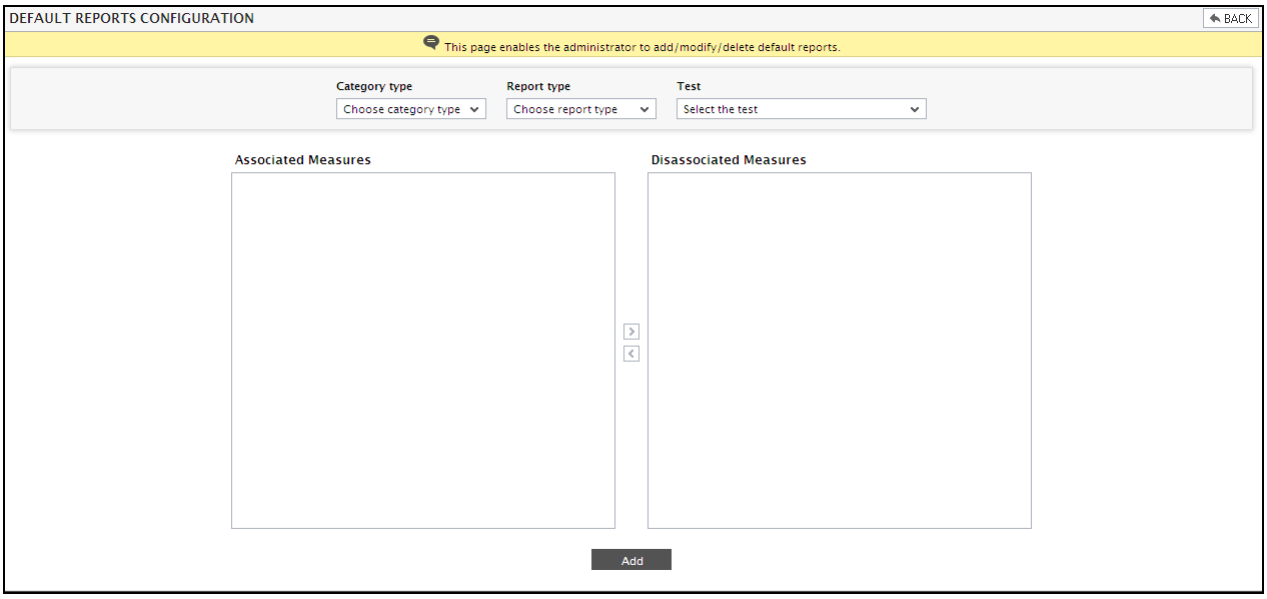


Figure 3.2: The Default Report Configuration page

In order to provide the users with adequate insight into the performance of the critical network, server, and application tiers of their infrastructure, the eG Reporter further classifies operations reports as **Network**, **System**, **Application** and **Site**. The sections to come will discuss each of these classifications at length.

Network Reports

Operations reports targeting the network tier of an infrastructure are classified as Network Reports. To generate default **Network Reports** using Figure 3.2, do the following:

1. Select **Network** as the **Category type** (see Figure 3.3).
2. Select a **Report type** from the list box (see Figure 3.3). The options to choose from include:
   - **Measure**: Measurement reports depict various measurement values plotted with time of day. The time period for these reports can be configured by the user.
   - **Summary**: Summary reports highlight the service levels of different measurements (i.e., the % of time a measurement was in compliance with its threshold). The service levels can be assessed on an hourly, daily, or monthly basis.
3. Next, to select the measures for which a report of the selected type is to be generated, first, choose the **Test** that generates the measures (see Figure 3.3).
4. Upon selection, all the measures associated with the selected test will appear in the **DISASSOCIATED MEASURES** list (see Figure 3.3).

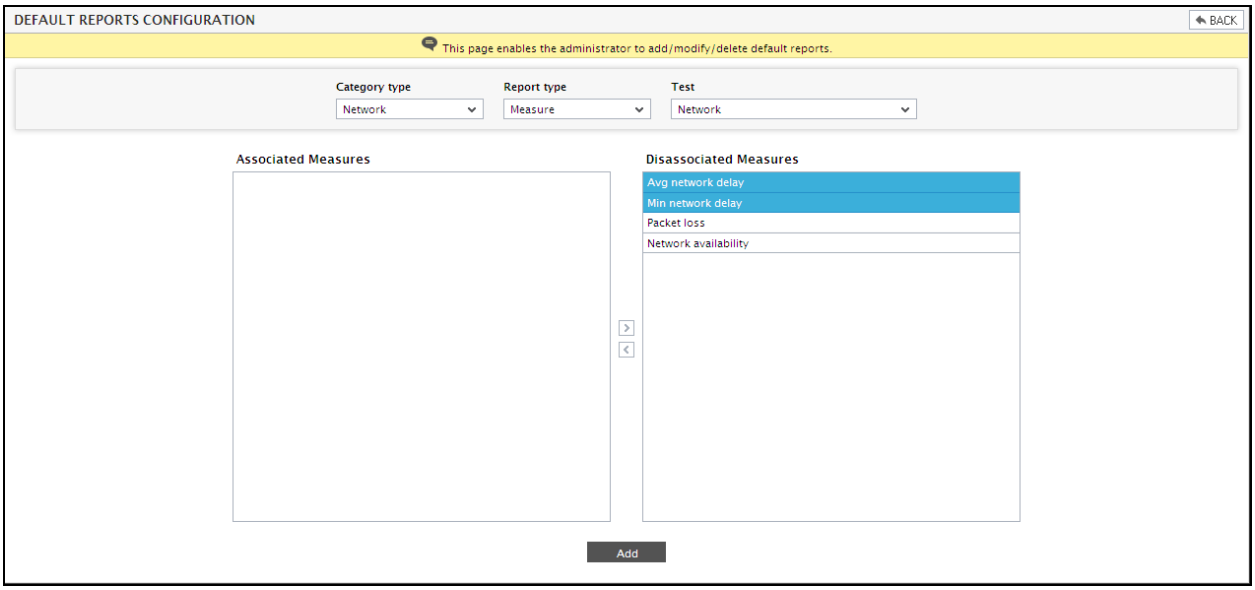


Figure 3.3: Measures associated with the selected test

5. Then, from the **Disassociated Measures** list, select the measures for which reports of the selected type are to be generated. Next, click on the **<** button to transfer the selected measures to the **ASSOCIATED MEASURES** list. Finally, click on the **Add** button. This ensures that reports of the selected type are generated for the measures available in the **Associated Measures** list. Figure 3.3, Figure 3.4, and Figure 3.5 depict this process clearly.

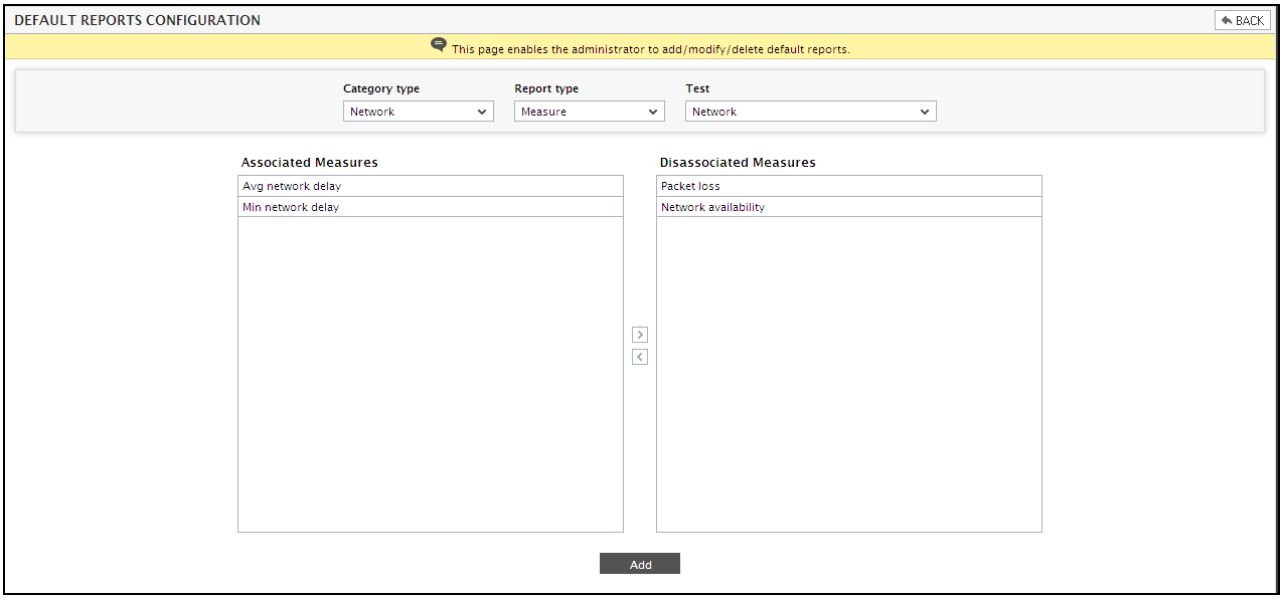


Figure 3.4: Associating the measures with the specified report type

Figure 3.5: Updating the association for a default network report

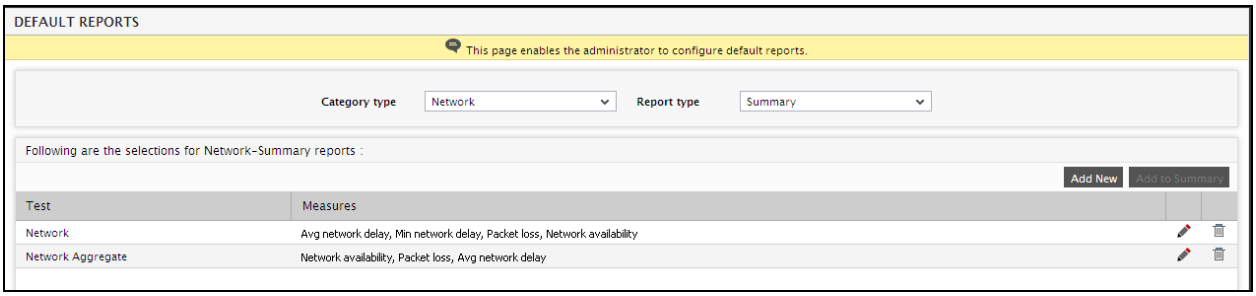


Figure 3.6: Configuring a default network summary report

6. Upon updating, the associated measures will be displayed as indicated by Figure 3.5. In the example depicted by Figure 3.6, Avg network delay and Min network delay are the measures that have been chosen for generating default **Network-Measure** reports. If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button in Figure 3.5.
7. However, in our example, the Avg network delay, Min network delay, Availability, and Packet loss are the measures that have been chosen for generating default **Network-Summary** reports (see Figure 3.5).
8. Settings so updated can be deleted using the button.
9. Clicking the icon agains tht eTest section will help you modify your selection. Figure 3.4 will then appear. Now, to disassociate the measures of your choice, select them from the **ASSOCIATED MEASURES** list, click on the **>** button, and finally, click on the **Add** button.

System Reports

This category illustrates various reports of operating-system level metrics such as CPU, memory, and disk usage.

For configuring reports of the **System** category, select the **System** option and proceed in the same manner as discussed above. Figure 3.7 depicts the process.

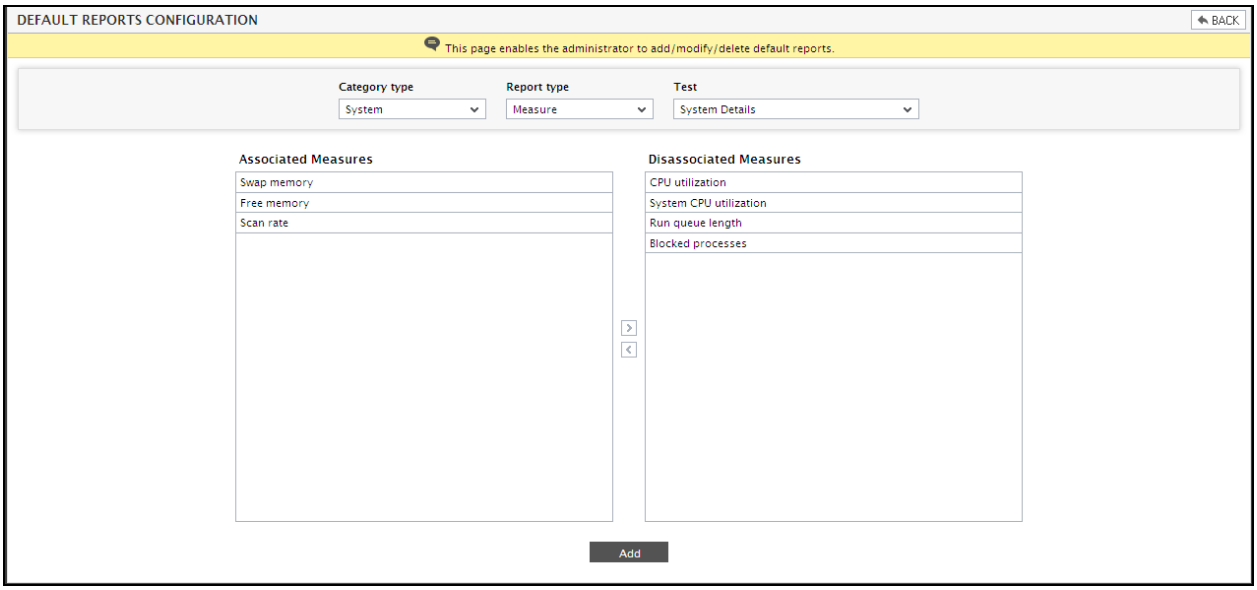


Figure 3.7: Specifying the measures for which default system reports are to be generated

In the example illustrated by Figure 3.7, note that three measures pertaining to the System Details test, namely, Swap memory, Free memory and Scan rate, have been chosen for generating **System-Measure** reports. If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button in Figure 3.8.

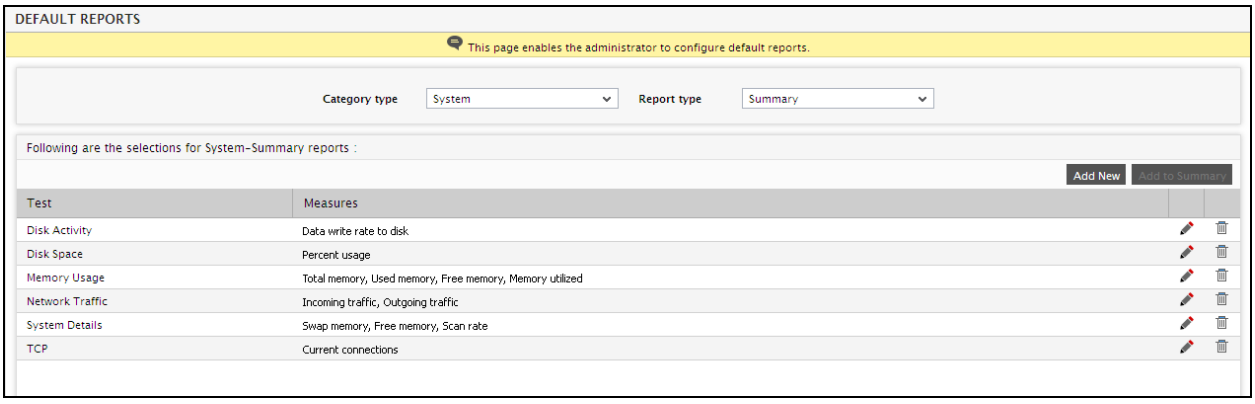


Figure 3.8: Clicking the Add to Summary button for generating the System Summary Reports

Application Reports

Application reports offer insights into an application's performance. Different reports can be configured and provided for each application.

For configuring reports belonging to the **Application** category, select the **Application** option and proceed as follows:

1. Select a **Report type** from the list box (see Figure 3.9).
2. Then, for generating reports for measures associated with a particular component type, select a type of component from the **Component type** list box (see Figure 3.9).
3. The **Test** list box will then be populated with all the tests associated with the selected component type. From

this list box, select the test that generates the measures for which reports are required (see Figure 3.9).

4. Once a test is selected, all the measures associated with the selected test will appear in the **DISASSOCIATED MEASURES** list (see Figure 3.9).
5. Then, from the **Disassociated Measures** list, select the measures for which reports of the selected type are to be generated (see Figure 3.9). Next, click on the **<** button to transfer the selected measures to the **Associated Measures** list. Then, click on the **Add** button. This ensures that reports of the selected type for the chosen component type are generated for the measures available in the **Associated Measures** list (see Figure 3.9).
6. Similarly, measures associated with multiple tests can be chosen for report generation (see Figure 3.10). Finally, click on the **Update** button.

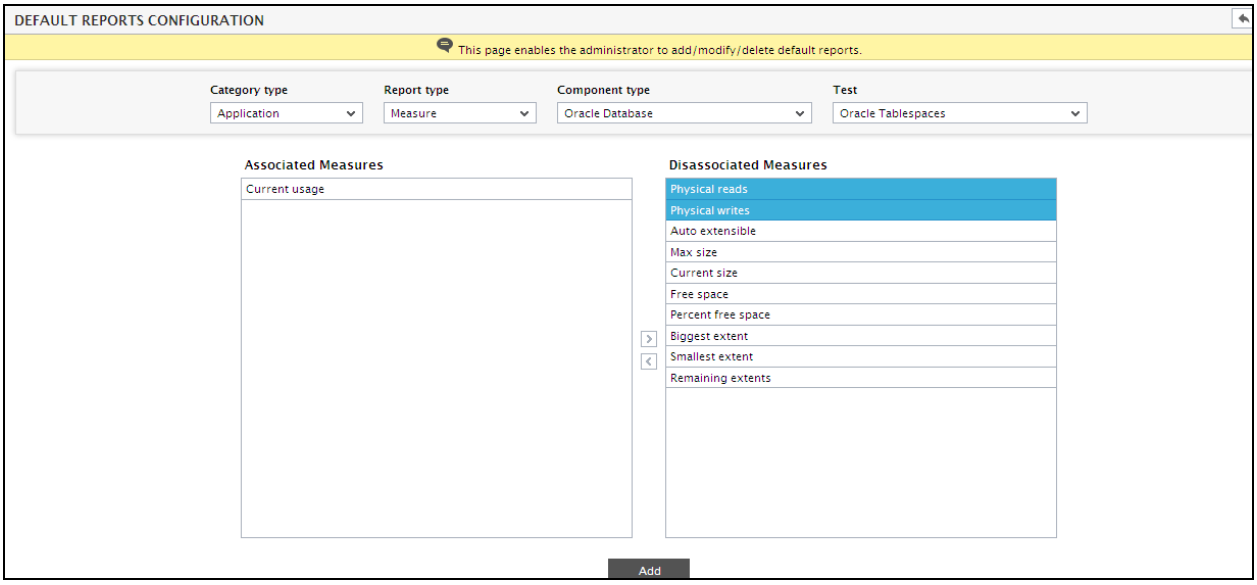


Figure 3.9: Specifying the measures for which default application reports are to be generated

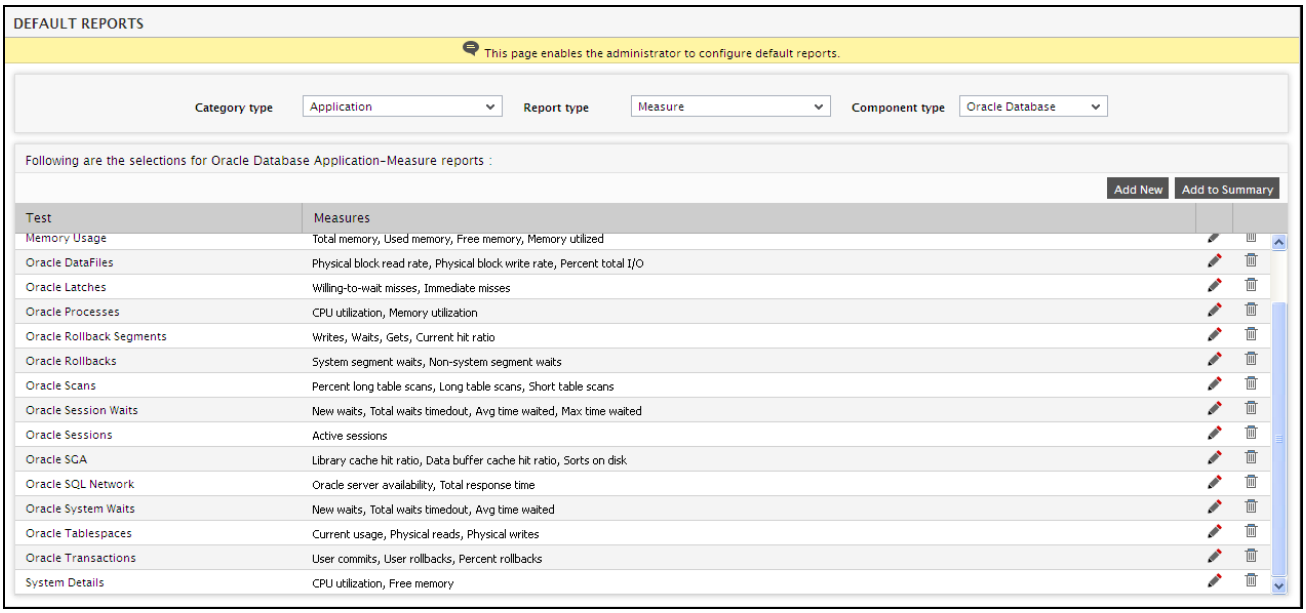

DEFAULT REPORTS
This page enables the administrator to configure default reports.
Category type
Application
Report type
Measure
Component type
Oracle Database
Following are the selections for Oracle Database Application-Measure reports :
Add New
Add to Summary
Test
Measures
Memory Usage
Total memory, Used memory, Free memory, Memory utilized
Oracle DataFiles
Physical block read rate, Physical block write rate, Percent total I/O
Oracle Latches
Willing-to-wait misses, Immediate misses
Oracle Processes
CPU utilization, Memory utilization
Oracle Rollback Segments
Writes, Waits, Gets, Current hit ratio
Oracle Rollbacks
System segment waits, Non-system segment waits
Oracle Scans
Percent long table scans, Long table scans, Short table scans
Oracle Session Waits
New waits, Total waits timedout, Avg time waited, Max time waited
Oracle Sessions
Active sessions
Oracle SGA
Library cache hit ratio, Data buffer cache hit ratio, Sorts on disk
Oracle SQL Network
Oracle server availability, Total response time
Oracle System Waits
New waits, Total waits timedout, Avg time waited
Oracle Tablespaces
Current usage, Physical reads, Physical writes
Oracle Transactions
User commits, User rollbacks, Percent rollbacks
System Details
CPU utilization, Free memory

Figure 3.10: List of measures for which default application reports are to be generated

7. In the example illustrated by Figure 3.9 and Figure 3.10, note that a host of measures for the tests related to the Oracle Database have been included along with the Physical writes and Physical reads measure associated with the Oracle TableSpaces test, for generating default **Application-Measure** reports. If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button in Figure 3.10.

8. Settings so updated can be deleted using the button.

9. Now, to disassociate the measures, select them from the **ASSOCIATED MEASURES** list, click on the **>** button, and finally, click on the **Add** button.

Site Reports

Performance metrics relating to different web sites can be plotted in the **Site** category.

For configuring reports belonging to the **Site** category, select the **Site** option and proceed in the same manner as discussed for **Network** reports. Figure 3.11 depicts this process.

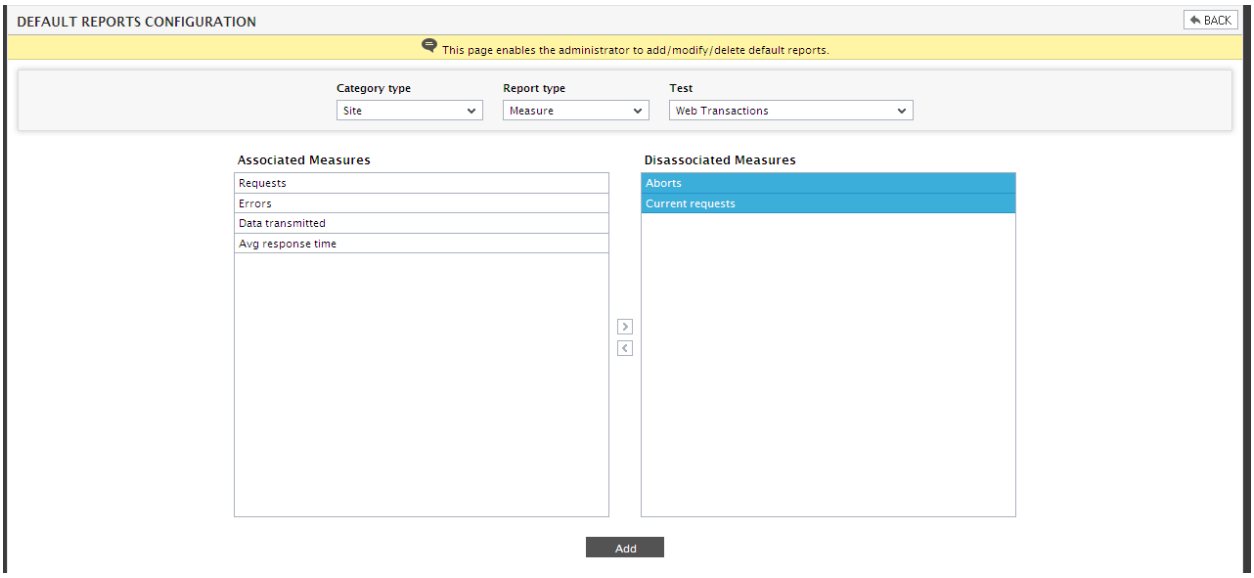


Figure 3.11: Specifying the measures for which default service reports are to be generated

According to Figure 3.11, two measures pertaining to the Web Transactions test, namely, Aborts and Current requests measures, have been chosen for generating default **Site-Measure** reports. If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button in Figure 3.12.

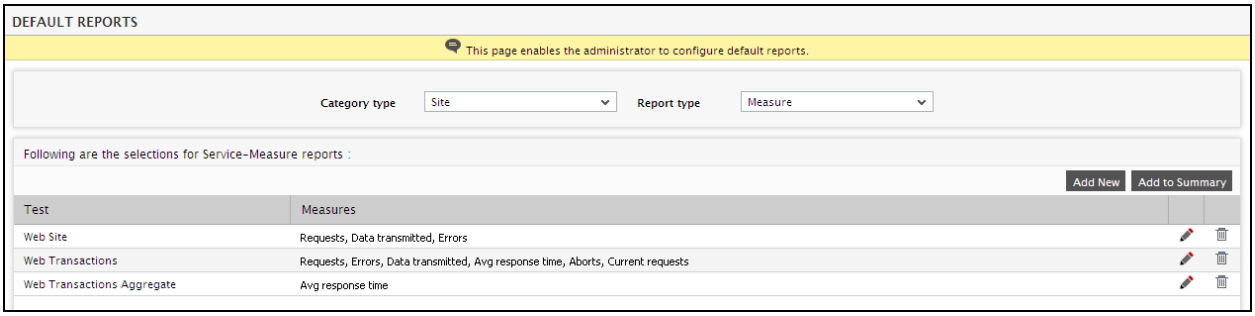


Figure 3.12: Adding the measures to generate the Site specific Summary reprots

3.2 Specific Reports

In many cases, an administrator may want to specify a different set of metrics for each component being managed. For example, the reports for the Oracle Database server running on the production server could be different from that running on the staging server. Such reports that are specific to a particular component/application/site are known as **Specific Reports**. To configure specific reports, select the **Specific** option from the **Reports** sub-menu of the **Configure** menu. Like **Default Reports**, **Specific Reports** can also be categorized as **Network**, **System**, **Application** and **Site**.

Network Reports

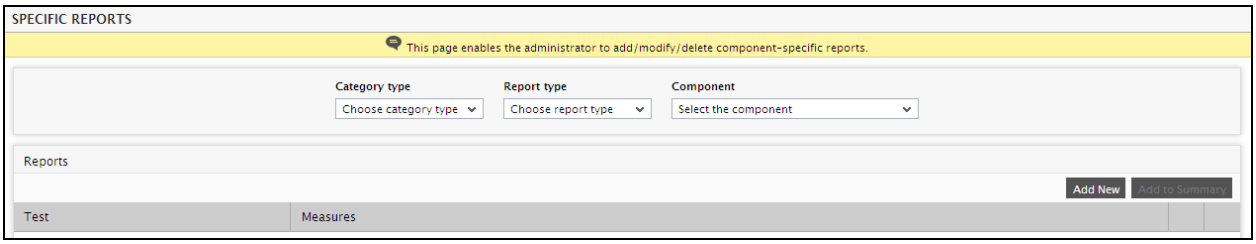


Figure 3.13: The eG Specific Reports page

Then, clicking the Add New button in Figure 3.13 will lead you to Figure 3.14. From Figure 3.14, configure the following:

1. For configuring reports belonging to the **Network** category, choose the **Network** option from Figure 3.14.
2. Select a **Report type** from the list box (see Figure 3.14).
3. Then, from the **Component** list box that lists all the managed components in the environment, select the **Component** for which reports are to be generated (see Figure 3.14).
4. Once a **Component** is selected, all the measures that were previously associated (if any) with the given combination of **Category type**, **Report type**, and **Component**, will be displayed.
5. Next, to select the measures for which a report of the selected type is to be generated, first, choose the **Test** that generates the measures. The **Test** list box will list all those tests that are applicable to the selected **Component** (see Figure 3.14).
6. Upon selection of a test, all the measures associated with the selected test, but which are not yet associated with the given **Category type**, **Report type**, and **Component** combination, will appear in the **Disassociated Measures** list (see Figure 3.14).

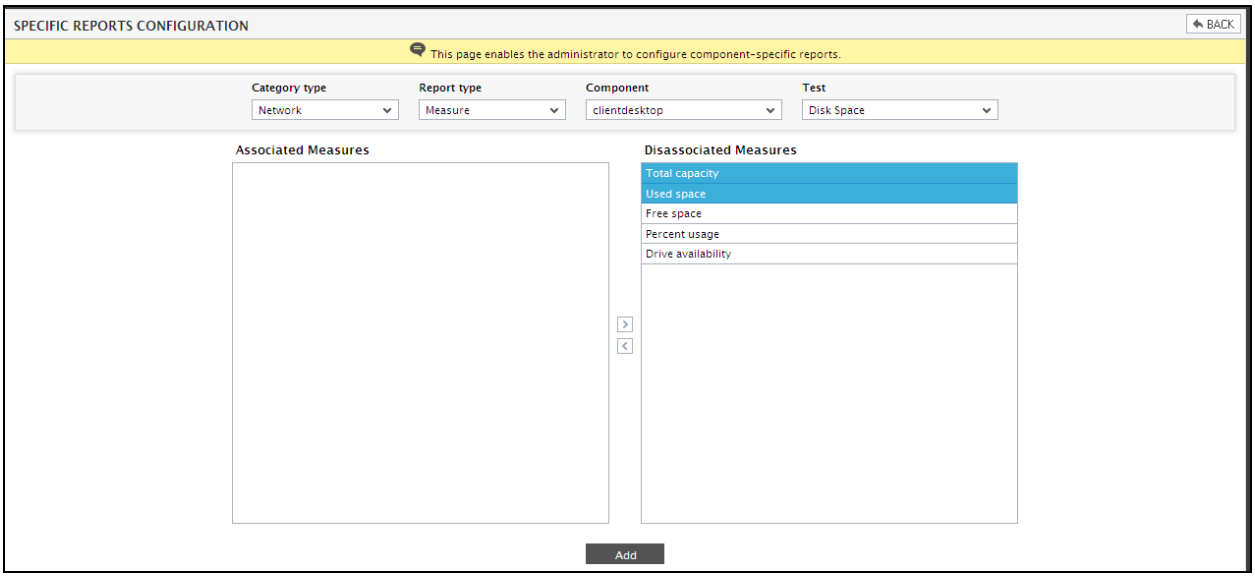


Figure 3.14: Configuring specific network reports

7. Now, from the **Disassociated Measures** list, select the measures for which reports of the selected type are to be generated. Next, click on the < button to transfer the selected measures to the **Associated Measures** list (see Figure 3.15).

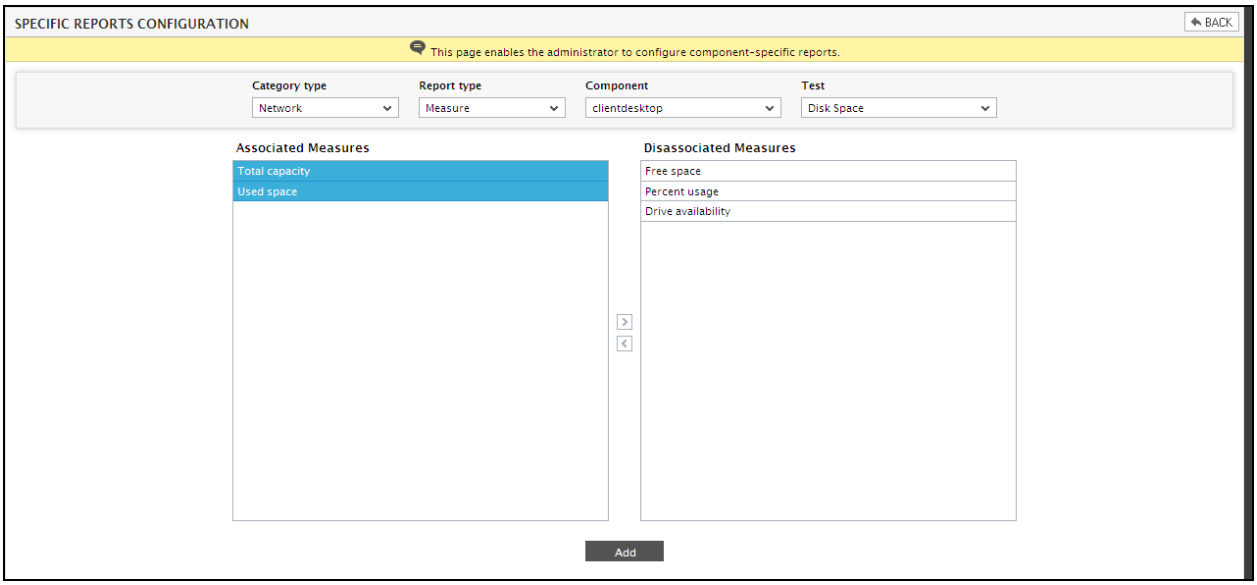


Figure 3.15: Associating the Measures for configuring the Network Specific reports

8. This ensures that **Network Reports** of the selected **Report type** for the chosen **Component** are generated for each of the measures present in the **ASSOCIATED MEASURES** lists. In the example illustrated by Figure 3.15, all the measures associated with the Network test have been chosen for generating network reports for the component Client Desktop. If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button.

9. Settings so updated can be deleted using the button.

10. Now, to disassociate the measures, select them from the **Associated Measures** list, click on the **>** button, and finally, click on the **Add** button.

System Reports

For configuring reports of the **System** category, select the **System** option and proceed in the same manner as discussed above. Figure 3.16 depicts this process.

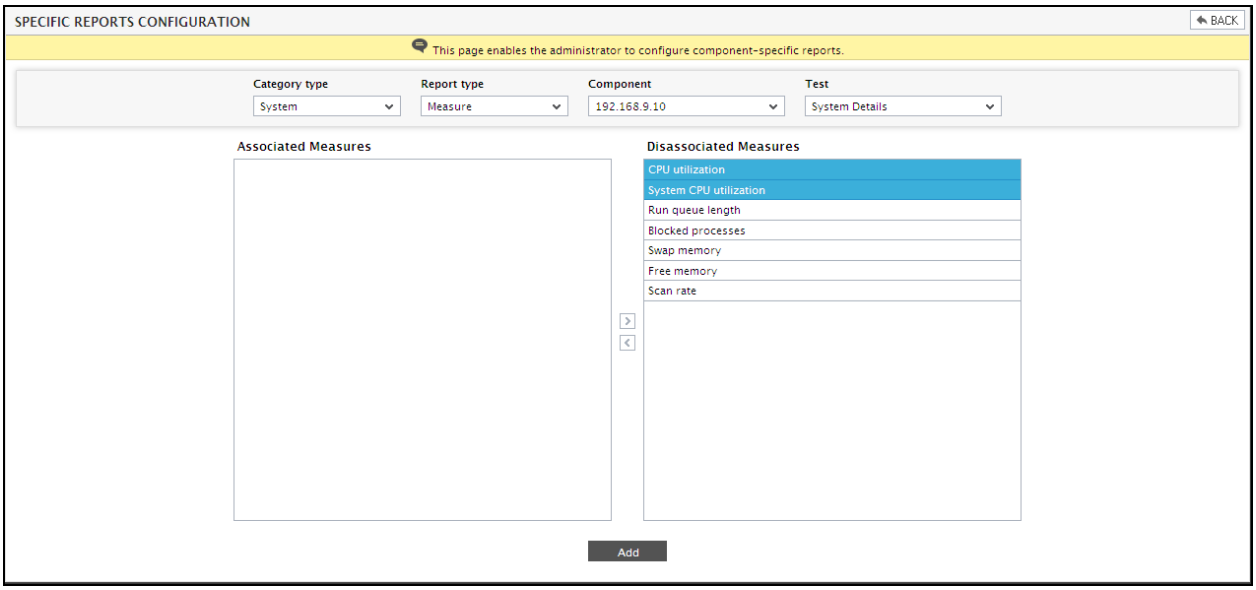


Figure 3.16: Configuring specific system reports

According to Figure 3.16, the CPU utilization and System CPU utilization measures of the System Details test have been chosen for generating specific **System-Measure** reports for the component 192.168.9.10. If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button.

Application Reports

For configuring reports belonging to the **Application** category, select the **Application** option (see Figure 3.17). Then, proceed as follows:

1. Select a **Report type (Measure/Summary)** from the list box (see Figure 3.17).
2. Then, for generating reports for measures associated with a particular component type, select a **Component type** (see Figure 3.17).
3. Then, from the **Component** list box that lists all the managed components of the selected **Component type**, select the **Component** for which reports are to be generated (see Figure 3.17).
4. Once this is done, all the measures that have already been associated (if any) with the given combination of **Category type**, **Report type**, **Component type**, and **Component**, will be displayed.
5. Also, the **Test** list box will be populated with all the tests associated with the **Component**. From this list box, select the test that generates the measures for which reports are required (see Figure 3.17).
6. Once a test is selected, all the measures associated with the selected test will appear in the **Disassociated Measures** list.
7. Now, from the **Disassociated Measures** list, select the measures for which reports of the selected type are to be generated. Next, click on the < button to transfer the selected measures to the **Associated Measures** list (see Figure 3.17).
8. Similarly, measures associated to multiple tests can be configured for a single report (see Figure 3.18).

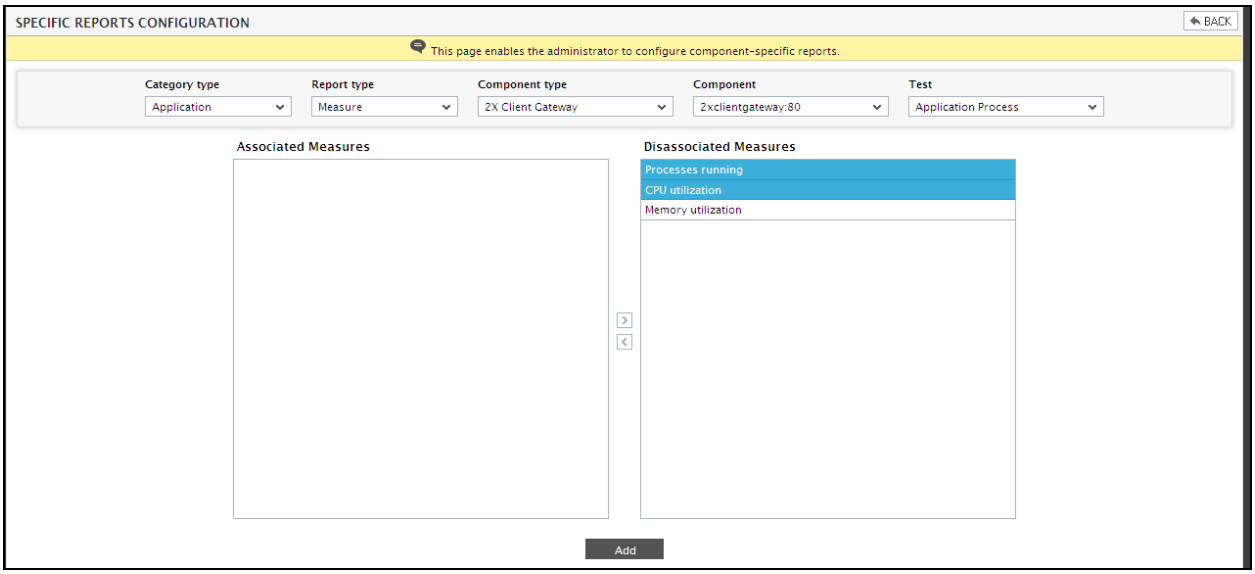


Figure 3.17: Associating the measures of the Application Process test

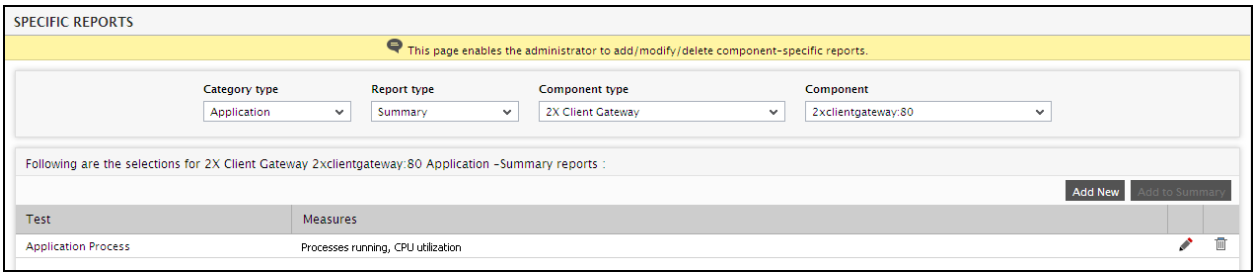


Figure 3.18: Associating the measures of the OracleLocks test

9. This ensures that **Application Reports** of the selected **Report Type** for the chosen **Component** are generated for each of the measures picked from the **Associated Measures** list. In the example illustrated by Figure 3.17 and Figure 3.18, note that the Processes running anf CPU utilization have been chosen for generating specific **Application-Measure** reports. If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button in Figure 3.18.

10. Settings so updated can be deleted using the button.

11. Now, to disassociate the measures, select them from the **Associated Measures** list, click on the **>** button, and finally, click on the **Add** button.

Site Reports

For configuring reports belonging to the **Site** category, select the **Site** option (see Figure 3.19). Then, proceed as follows:

1. Select a **Report type** (**Measure/Summary**) from the list box (see Figure 3.19).

2. Then, for generating reports for measures associated with a particular site, select a site from the **Sites** list box (see Figure 3.19).

3. Once this is done, all the measures that have already been associated (if any) with the given combination of **Category type**, **Report type**, and **Site**, will be displayed.

4. Also, the **Test** list box will be populated with all the tests associated with the site. From this list box, select the test that generates the measures for which reports are required (Figure 3.19).
5. Once a test is selected, all the measures associated with the selected test will appear in the **DISASSOCIATED MEASURES** list.
6. Now, from the **DISASSOCIATED MEASURES** list, select the measures for which reports of the selected type are to be generated. Next, click on the **<< Associate** button to transfer the selected measures to the **ASSOCIATED MEASURES** (see Figure 3.19) list.
7. Finally, click on the **Update** button.

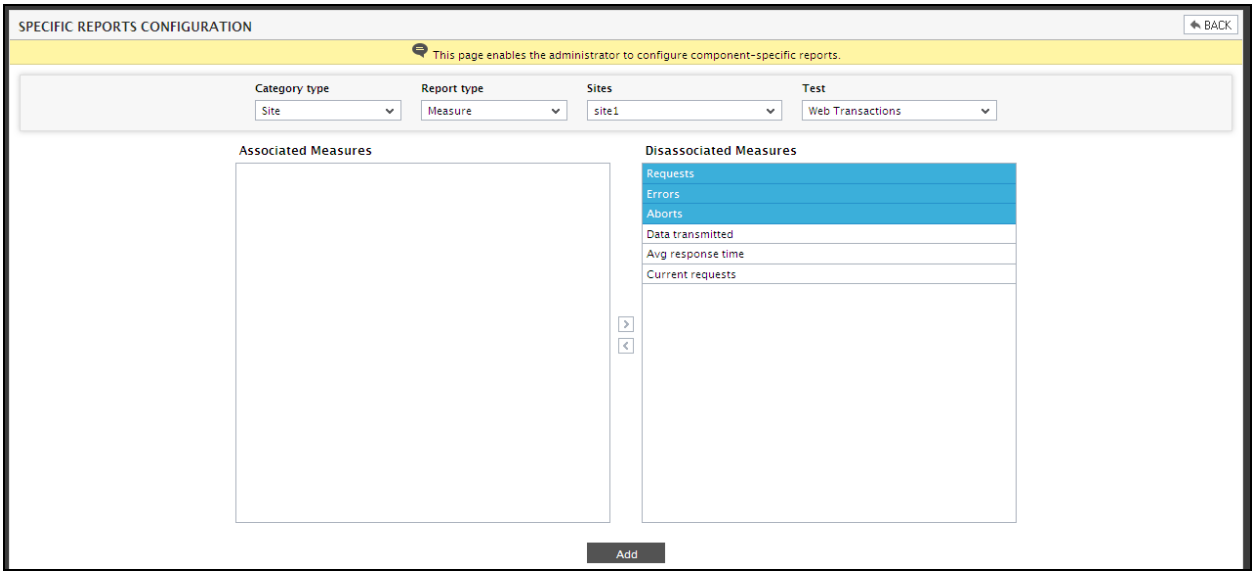


Figure 3.19: Configuring specific site reports

8. This ensures that **Site Reports** of the selected **Report type** for the chosen site are generated for each of the measures available in the **Associated Measures** list (see Figure 3.19). According to Figure 3.19, the Errors, Requests and Aborts measures associated with the Web Transactions test has been chosen for generating specific **Site-Measure** reports for the site1. If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button.
9. Settings so updated can be deleted using the button.
10. Now, to disassociate the measures, select them from the **Associated Measures** list, click on the **>** button, and finally, click on the **Add** button.

3.3 User Reports

The eG manager also provides administrators the ability to define reports for individual users. To define a user report, select the **UserReports** option from the **Reporter** menu of the **Settings** tile in the eG administrative interface. Like **Default Reports**, **User Reports** can also be categorized as **Network**, **System**, **Application** and **Site**.

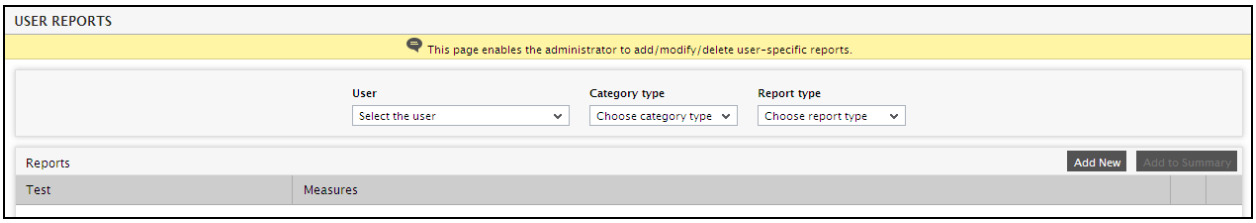


Figure 3.20: The eG User Report configuration

Network Reports

For configuring **Network** reports, do the following:

1. Click **Add New** option from Figure 3.20.
2. From Figure 3.21 that appears, select a user from the **User** list.
3. Next, select the **Network** option (see Figure 3.21).
4. Then, select a **Report type** from the list box (see Figure 3.21).
5. Next, to select the measures for which a report of the selected type is to be generated, first, choose the **Test** that generates the measures (see Figure 3.21).
6. Upon selection of a test, all the measures associated with the selected test, but which are not yet associated with the given **User**, **Category type**, and **Report type** combination, will appear in the **Disassociated Measures** list.
7. Now, from the **Disassociated Measures** list, select the measures for which reports of the selected type are to be generated. Next, click on the **<** button to transfer the selected measures to the **Associated measures** list (see Figure 3.21).

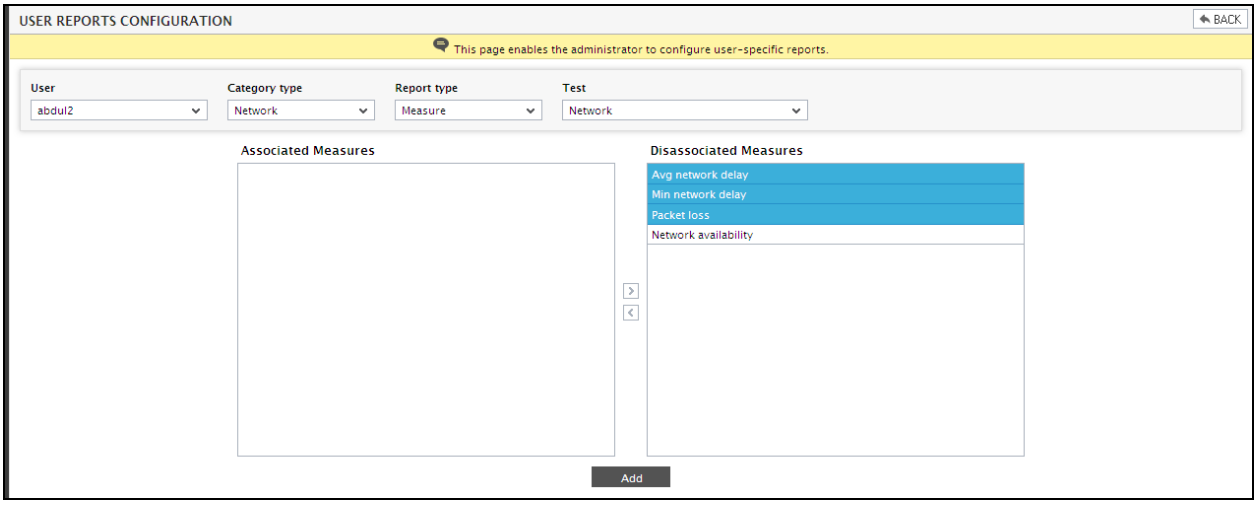


Figure 3.21: Configuring user network reports

8. Now, whenever the chosen user logs into the eG Reporter and attempts to generate **Network Reports** of the selected **Report type**, the same will be generated for each of the measures available in the **Associated Measures** list. In the example illustrated by Figure 3.21, note that the Avg network delay, Min network delay and Packet loss measures associated with the Network test have been chosen for generating Network reports for the user *abdul2.* If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button in Figure 3.20.

9. Settings so updated can be deleted using the button.
10. Now, to disassociate the measures, select them from the **Associated Measures** list, click on the **>** button, and finally, click on the **Add** button.

System Reports

For configuring reports of the **System** category, select the user from the **User** list, choose the **System** option and then proceed in the same manner as discussed for Network reports.

Application Reports

For configuring reports belonging to the **Application** category, do the following:

1. Select a user from the **User** list (see Figure 3.22).
2. Then, choose the **Application** option.
3. Then, select a **Report type** (**Measure/Summary**) from the list box (see Figure 3.22).
4. Next, for generating reports for measures associated with a particular component type, select a **Component type**.
5. Then, from the **Component** list box that lists all the managed components of the selected **Component type**, select the **Component** for which reports are to be generated (see Figure 3.22).
6. Also, the **Test** list box will be populated with all the tests associated with the **Component**. From this list box, select the test that generates the measures for which reports are required (see Figure 3.22).
7. Once a test is selected, all the measures associated with the selected test will appear in the **Disassociated Measures** list (see Figure 3.22).
8. Now, from the **Disassociated Measures** list, select the measures for which reports of the selected type are to be generated. Next, click on the **<** button to transfer the selected measures to the **Associated Measures** list (see Figure 3.22).

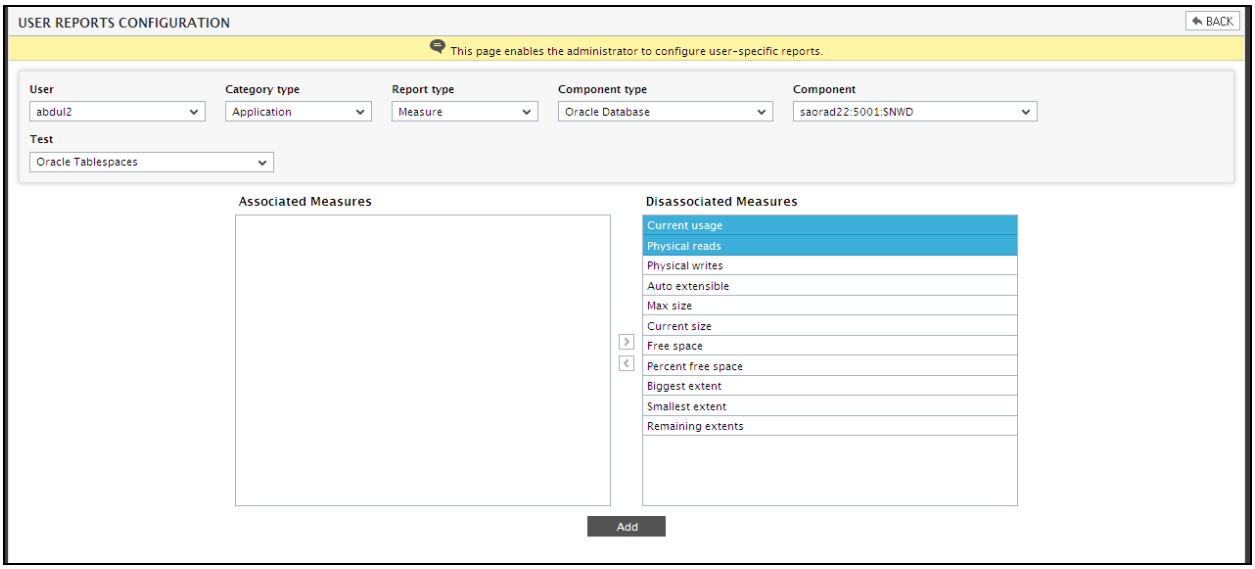


Figure 3.22: Configuring user application reports

9. Now, whenever the chosen user logs into the eG Reporter and attempts to generate **Application Reports** of the selected **Report type**, the same will be generated for each of the measures picked from the **Associated Measures** list. In the example illustrated by Figure 3.22, the Current usage and Physical reads measure of the OracleTablespaces test has been selected for generating **Application-Measure** reports for the user *abdul2*. If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button.
10. Settings so updated can be deleted using the button.
11. Now, to disassociate the measures, select them from the **Associated Measures** list, click on the **>** button, and finally, click on the **Add** button.

Site Reports

For configuring reports belonging to the **Site** category, do the following:

1. Select a user from the **User** list (see Figure 3.23).
2. Next, select the **Site** category type (see Figure 3.23).
3. Then, select a **Report type (Measure/Summary)** from the list box (see Figure 3.23).
4. Once this is done, all the measures that have already been associated (if any) with the given combination of **Category type**, and **Report type**, and **User** will be displayed.
5. Also, the **Test** list box will be populated with all the tests associated with the site. From this list box, select the test that generates the measures for which reports are required (see Figure 3.23).
6. Once a test is selected, all the measures associated with the selected test will appear in the **Disassociated Measures** list (see Figure 3.23).
7. Now, from the **Disassociated Measures** list, select the measures for which reports of the selected type are to be generated. Next, click on the **<** button to transfer the selected measures to the **Associated Measures** list (see Figure 3.23).
8. Finally, click on the **Add** button.

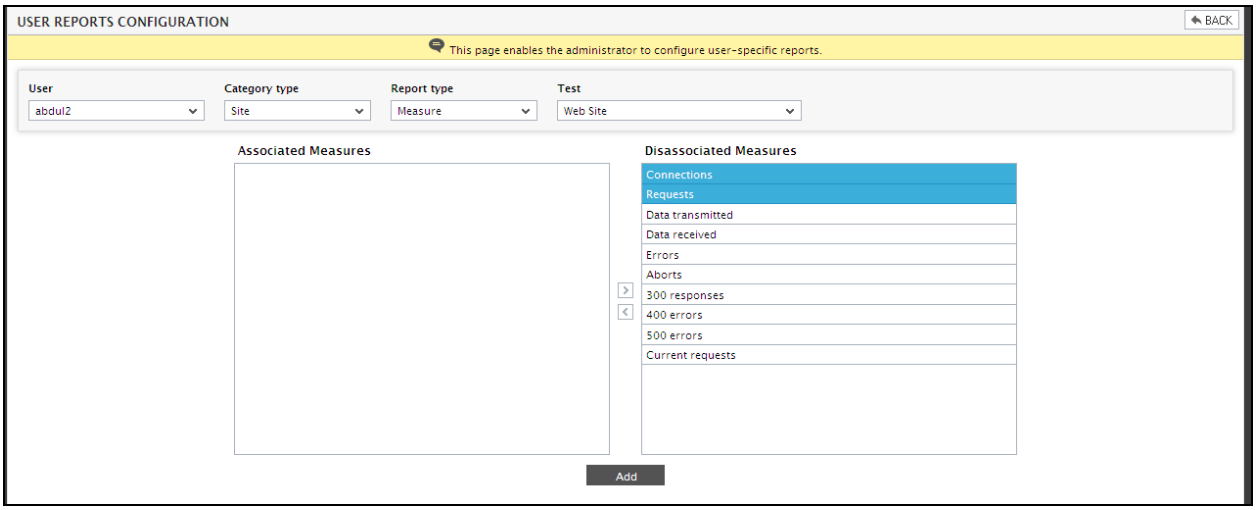


Figure 3.23: Configuring user-specific service reports

9. In the example illustrated by Figure 3.23, the Connections and Requests measures have been chosen for generating **Site-Measure** reports for user *abdul2.* If summary reports are to be generated for the same set of measures, then click on the **Add to Summary** button.

10. Settings so updated can be deleted using the button.

11. Now, to disassociate the measures, select them from the **Associated Measures** list, click on the **>** button, and finally, click on the **Add** button.

User report specifications get the highest precedence, followed by component-specific reports. Default report settings come into effect if neither user nor specific reports apply.

3.4 Consolidated Reports

The **Consolidated Analysis** reports option that the eG Reporter includes, provides a bird's eye view of infrastructure performance. While detailed graphs are ideal for analyzing performance of one server or application or device in detail, what IT operators of large infrastructures need to be able to see is a quick comparison of performance across the servers in their infrastructure.

The comparison should span multiple metrics so that the IT operators can get at a glance consolidated view of their infrastructure. The consolidated reports option addresses this requirement. Using this capability, IT operators can quickly determine if there are hot-spots in their infrastructure, whether the load balancing is working as expected, etc. Comparison of these reports over time can provide key indications regarding performance trends.

eG enterprise uses the grouping of servers as a **Zone** to define the scope of a consolidated report. Choosing the **Zone** option, allows a consolidated report to be defined comparing all the servers in the Zone. The **Server** option summarizes the performance of one of the components of the infrastructure.

Besides the above, eG Reporter provides the **CITRIX / VDI Reports** category that addresses the unique monitoring requirements of thin client environments. This category provides valuable insights into different aspects of a thin client infrastructure's performance.

In order to enable you to focus on the critical/hyper-sensitive attributes of server/zone performance, eG Enterprise allows you the flexibility to choose the measures that are to be displayed in a **Zone** or **Server Consolidated Report**. In addition, the default **Time period**, **Timeline**, and **Weekend** settings for **Consolidated** and **Thin Client** reports can also be set.

To achieve the above, do the following:

1. Select the **Consolidated Reports** option from the **Reporter** menu of the **Settings** tile in the eG administrative interface.
2. Select a **Report type** from Figure 3.24 that appears. By default, **Zone** is selected. The other options are: **Server**, **Thin Client Session**, **Thin Client Application**, and **Thin Client User**. The Thin Client reports are relevant for Citrix and Terminal server environments.

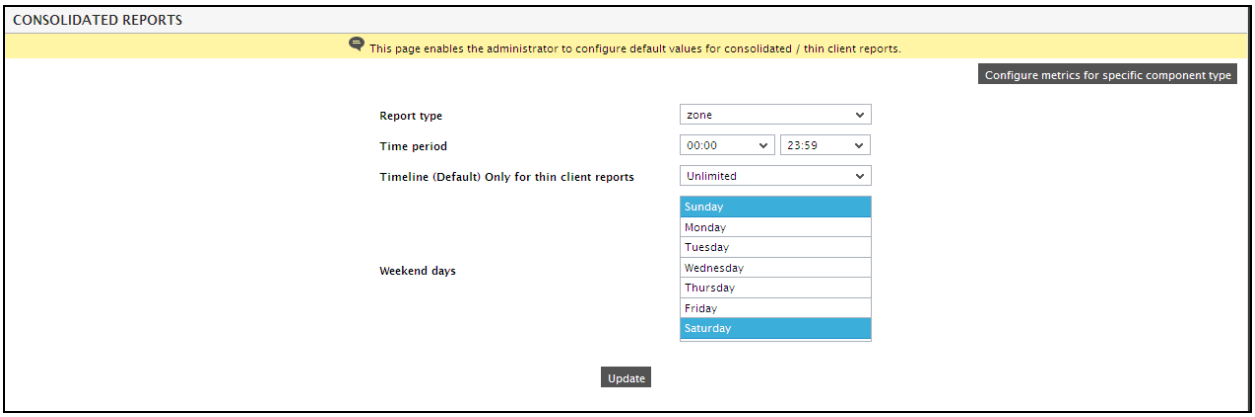


Figure 3.24: Defining the Consolidated and Citrix/VDI Report Defaults

3. Next, indicate the default **Time period** that is to be set for the chosen **Report type**.
4. Similarly, the default **Timeline** setting for the **Report type** can also be specified. However, this setting applies to **Thin client reports only**.
5. Additionally, from the **Weekend days** list, you can select the days of the week that constitute a "weekend".
6. To save the configurations, click on the **Update** button in Figure 3.24.
7. Next, proceed to configure the measures to be displayed in the **Consolidated Reports**, by clicking on the **Click here** hyperlink at the top of Figure 3.24.
8. Figure 3.25 then appears. First, select the **Report type** (the options are **Zone** and **Server**) for which measures are to be configured. The default selection is **Zone**. If the **Report Type** is **Zone**, then follow the steps given below:
   - Choose the **Component type** for which the **Zone** report is to be generated. By default, the **Default (All Components)** option is chosen here.

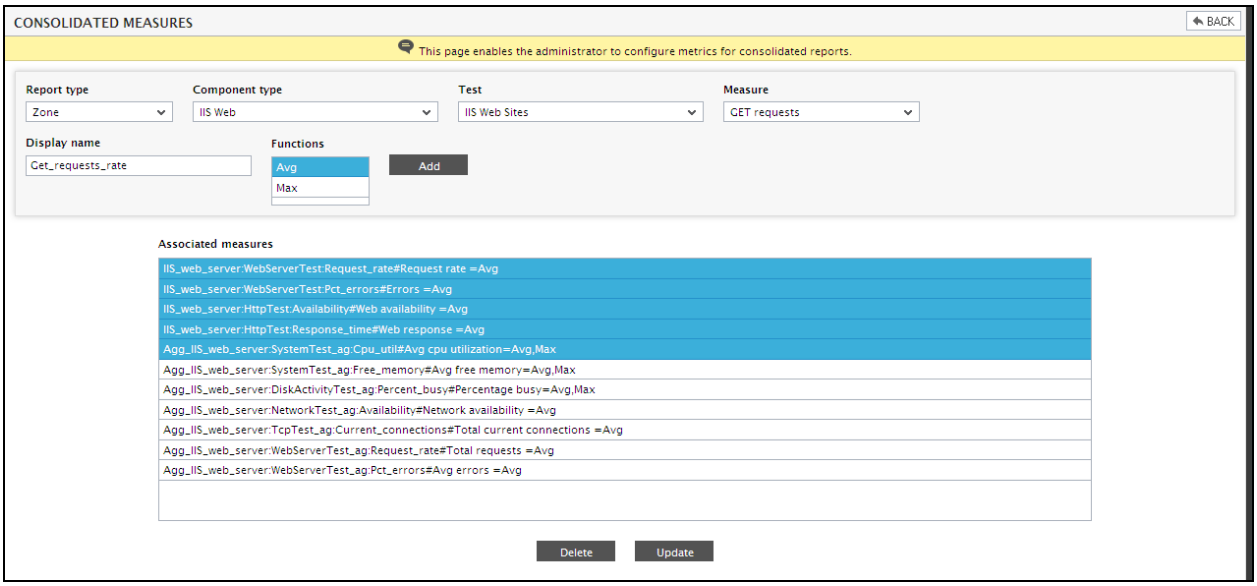


Figure 3.25: Selecting the measures to be displayed in a Consolidated Zone report

- Next, select the **Test** to which the measures to be displayed in the report pertain.
- Choose a **Measure** and provide a **Display name** for the measure in the report. If a **Display name** is not provided, then the **Measure** name automatically becomes the **Display name**.

Measures that are associated with the **Default (All Components)** option will not be available for selection while configuring measures for any other **Component type**.

- Then, pick the functions to be applied to the values of the chosen **Measure**. Multiple functions can be simultaneously selected. By default, the *Avg* and *Max* functions are available for selection. To add more functions to the list, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - By default, the **Function** list in the **[ZONE_REPORT]** section of the file will be set to **Avg** and **Max**. You can, if you so desire, append more functions to the list, or remove any of the existing functions.
  - Finally, save the file.
- Finally, add the specification by clicking on the **Add** button. The complete specification will then get added to the **Associated Measures** list. Similarly, multiple specifications can be added to the list.
- For the default **Component type**, **Default (All Components)**, a few specifications pre-exist in the **Associated Measures** list (see Figure 3.26). You can add more measures to this list, if required. This default list automatically applies to all managed component-types. If measures are configured for a particular component-type, then such measure configurations will only be appended to the default configurations.

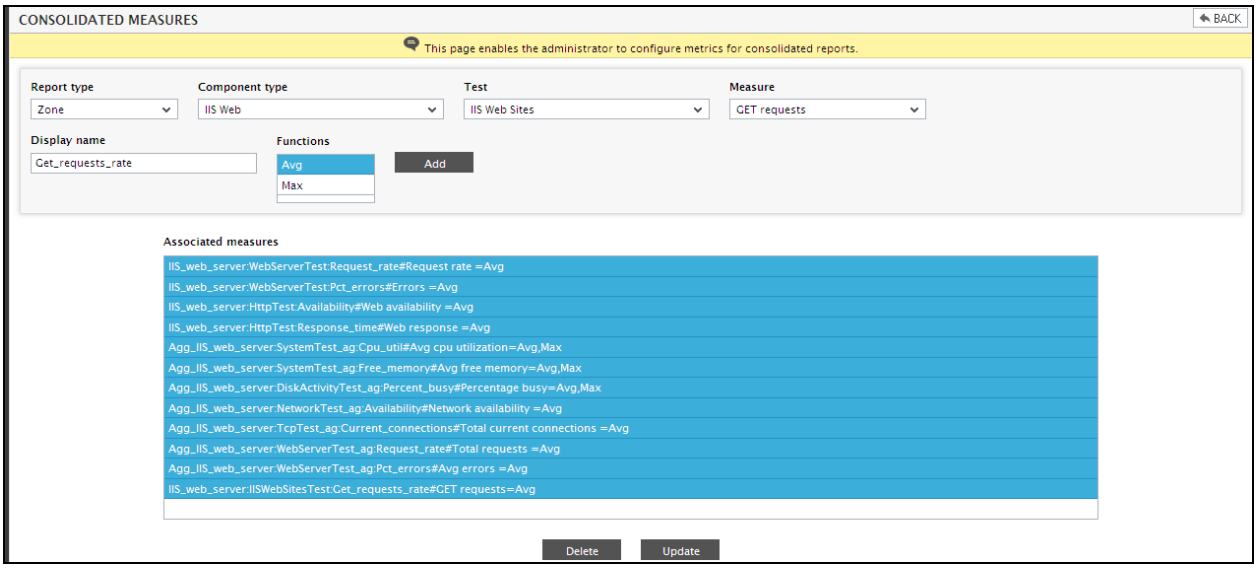


Figure 3.26: Measures associated with the Default Component type

9. Now, if the **Report type** is **Server**, then proceed in the following manner:

   - Select the **Test** to which the measures to be displayed in the report pertain (see Figure 3.27).

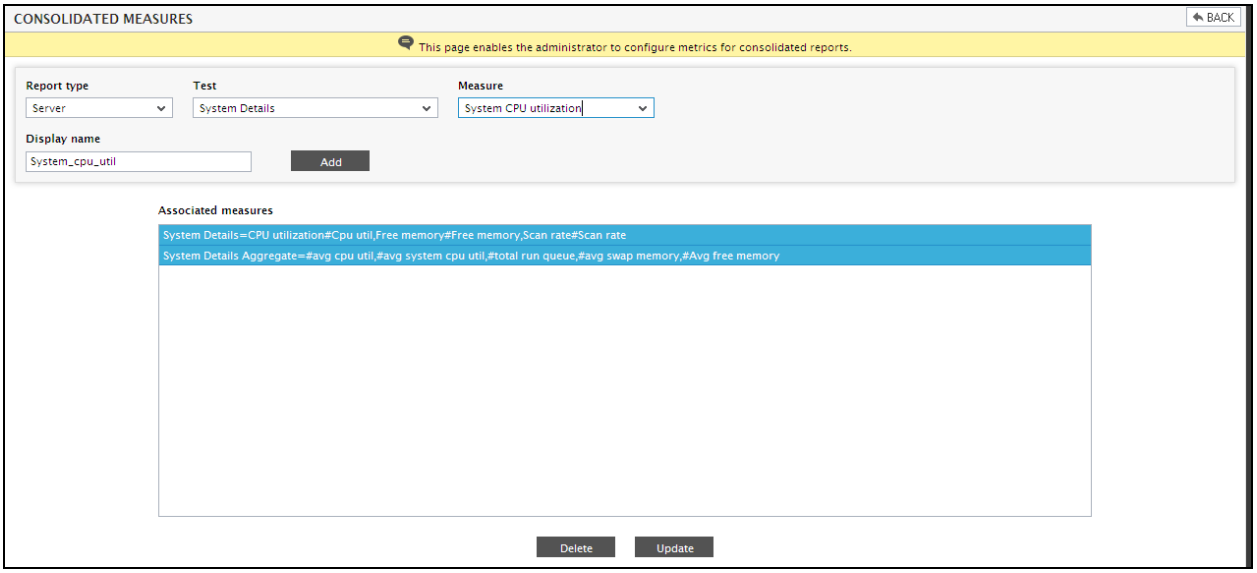


Figure 3.27: Selecting the measures to be displayed in a Consolidated Server report

   - Choose a **Measure** and provide a **Display name** for the measure in the report. If a **Display name** is not provided, then the **Measure** name automatically becomes the **Display name**.
   - Finally, add the specification by clicking on the **Add** button. The complete specification will then get added to the **ASSOCIATED MEASURES** list. Similarly, multiple specifications can be added to the list.

10. To delete an entry from the **Associated Measures** list, select it and click the **Delete** button.

11. To save the changes, click the **Update** button in Figure 3.27.

3.5 Configuring Percentile Values for Custom Capacity Planning Report

The eG Reporter module offers a wide variety of reports using which one can cross-correlate and time-correlate across thousands of metrics collected from across the environment. Reports generated using trend data particularly can accurately reveal the past load and performance trends, using which future trends in load and usage can be determined. The *Avg, Sum, Max,* and *Min* values computed by the eG Enterprise system on an hourly basis as part of its trend computations, help a great deal in determining potential sizing inadequacies and planning the future capacity of the environment. However, from a strict capacity planning perspective, **Percentile** values are deemed as more effective pointers to capacity inadequacies than the avg, sum, max, and min values.

To enable users to effectively plan the capacity of their environment, eG Enterprise allows administrators to configure the trend manager to compute percentile values, and then generate detailed **Capacity Planning** reports using the computed percentiles.

To configure the minimum and maximum percentile values that the eG trend manager should compute for a measure, do the following:

1. Login to the eG administrative interface as *admin*.
2. Follow the menu sequence: Settings -> Reporter -> Capacity Planning Reports.

By default, the **Capacity Planning Reports** option will not be available in the **Reporter** sub-menu - i.e., users are not allowed to configure/generate capacity planning reports by default. To enable the generation of capacity planning reports, do the following:

- Edit the **eg_services.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MISC_ARGS]** section of the file, you will find a **CapacityReportEnabled** flag, which is set to **false** by default. Change this flag to **true**.
- Save the file.

3. By default, the **Configure Percentile Policy** tab page will open with the **View** option chosen (by default) from the **Percentile Policies** list. If percentile definitions pre-exist, then the list of existing definitions will then appear. By default, a definition named **Default** will pre-exist, which will be set to a maximum percentile value of 95 and a minimum value of 5.

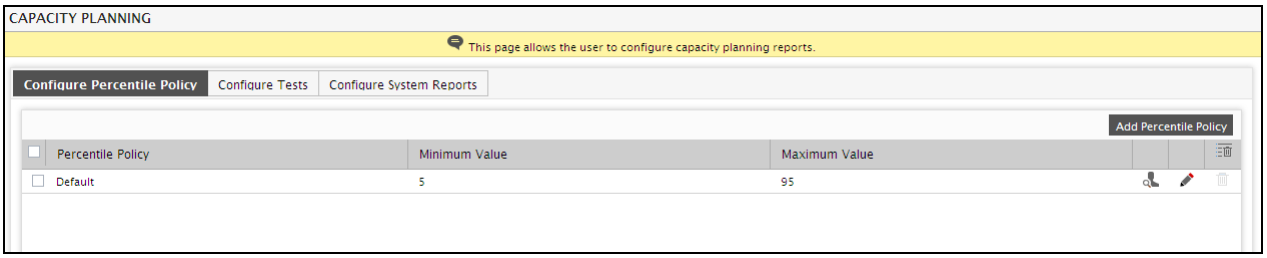


Figure 3.28: Viewing the list of percentile policies

4. To add a new policy, click on the **Add Percentile Policy** button. This will invoke Figure 3.29.

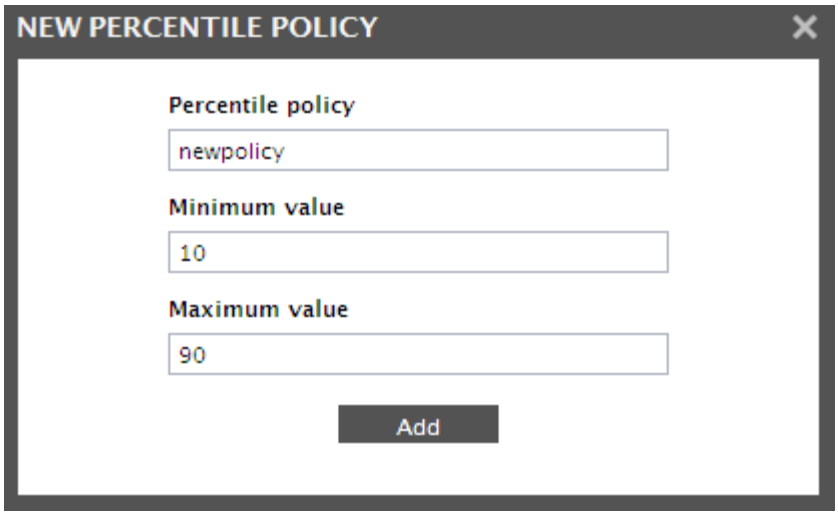


Figure 3.29: Adding a new policy

5. Here, provide a name for the percentile definition in the **Percentile policy** text box.
6. Specify minimum and maximum percentile values in the **Minimum** and **Maximum** text boxes.
7. Finally, click the **Update** button.

To modify a percentile definition, do the following:

1. Click on the button against the Percentile Policy of your choice from Figure 3.28.

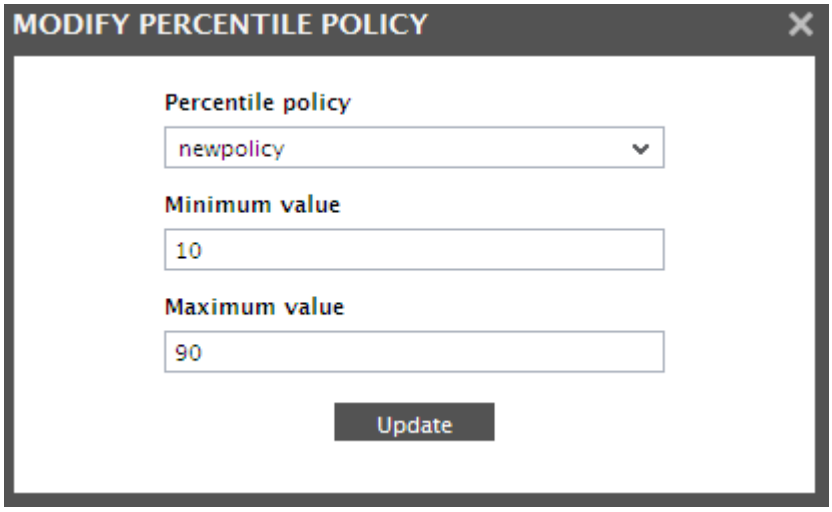


Figure 3.30: Modifying a percentile policy

2. From Figure 3.30 that appears, pick the **Percentile Policy** to be modified.
3. The **Minimum** and **Maximum** values configured for the chosen percentile policy will then appear.
4. Change the required values and click the **Update** button to save the changes.

To delete a percentile definition, do the following:

1. Pick Percentile Policies to be deleted by selecting the corresponding check boxes (see Figure 3.28).

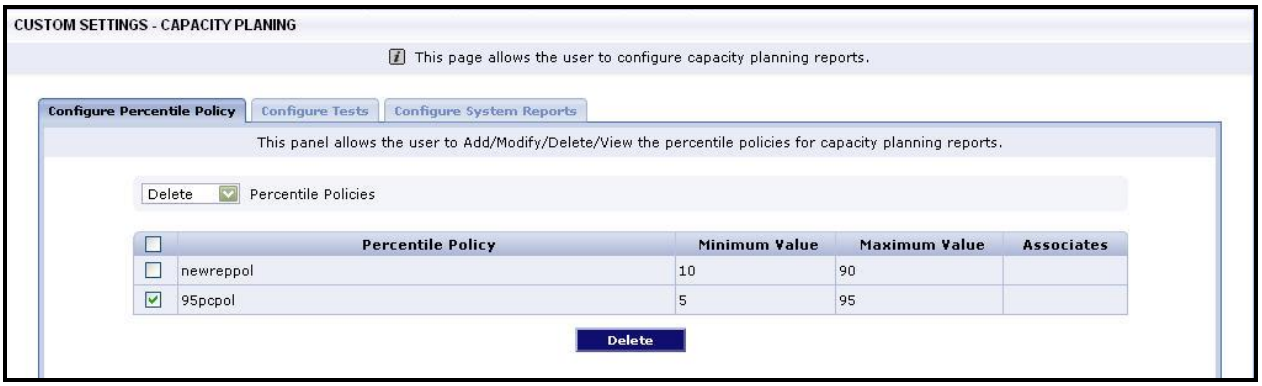


Figure 3.31: Deleting a percentile policy

2. The button will noe be enabled against the percentile Policies. Clicking on this button will delete the percentile Policies. **Note that eG Enterprise will allow the deletion of only those definitions that have not been assigned to any measure yet**.

3.6 Configuring the Capacity Planning Reports

Configuring the Capacity planning reports involves the following broad steps:

- Enabling the Capacity Planning capability for specific tests
- Associating the Percentile policies that were created earlier with the measures reported by a test

To achieve this, do the following:

1. Follow the menu sequence: Settings -> Reporter -> Capacity Planning Reports.
2. When Figure 3.32 appears, click on the **Configure Tests** tab page therein.
3. Then, pick a **Component Type** from Figure 3.32.

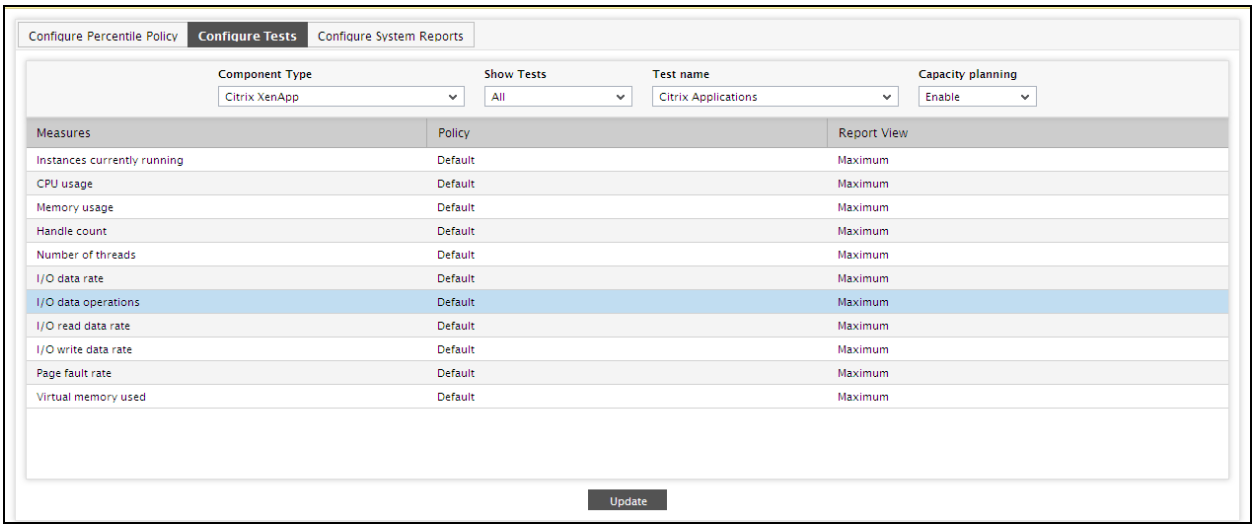


Figure 3.32: Associating the percentile policy with a test

4. By default, all tests associated with the chosen component-type will be listed in the **Test Name** list. Accordingly, the *All* option is chosen by default from the **Show Tests** list. To view only those tests for which the 'capacity planning capability' has already been enabled, pick the *Capacity enabled* option from the **Show Tests** list.

5. Next, pick a **Test Name**. If the capacity planning capability is already enabled for the chosen test, then, the **Capacity Planning** flag will be set to **Enabled** by default. If the capability is not yet enabled for the chosen test, then the **Capacity Planning** flag will be set to **Disabled** by default. To enable this capability for the chosen test, select the **Enabled** option.

6. Then, proceed to configure each measure of the selected test to compute percentile values while performing trending. For this, against each measure in Figure 3.32, pick the **Percentile Policy** that applies to that measure, and then, pick the **Minimum** or **Maximum** option from the **Report View** list to indicate which value of the selected **Percentile Policy** should be displayed in the report. This choice depends upon the nature of the measure - take the **CPU utilized** measure for instance; since the CPU resource requirement of a system can be ascertained based only on how high CPU usage was during a specific period of time in the past, it would make good sense to associate the **Maximum** percentile value with the **CPU utilized** measure. Similarly, in the case of the **Free memory** measure, where the memory requirement of a system can be determined by understanding how low the free memory value was during the given **Timeline**, it would be more meaningful if the **Minimum** percentile value is displayed in the report.

7. Finally, click the **Update** button.

8. Each measure will now be automatically associated with the **Percentile Policy** chosen from Figure 3.32. To view which measures a particular percentile policy is associated, click the **Configure Percentile Policy** tab page in Figure 3.32. Figure 3.33 appears listing all the percentile policies that pre-exist.

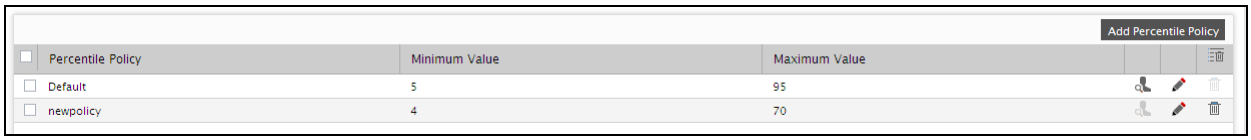


Figure 3.33: Viewing the percentile policies that pre-exist

9. If any of the policies listed in Figure 3.33 have already been associated with one/more measures, a button will appear as shown in Figure 3.33.

10. If you click on this button corresponding to a measure, Figure 3.34 will appear listing all those measures to which the chosen percentile policy has been assigned.

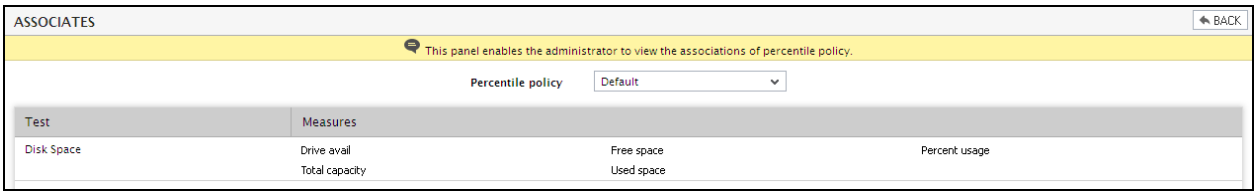


Figure 3.34: Viewing the measures that are associated with a percentile policy

3.7 Configuring the Capacity Planning System Report Settings

If a system is configured with sufficient CPU, memory, bandwidth, and disk resources, the applications executing on it seldom suffer performance degradations. Therefore, when planning the capacity of their mission-critical applications/business services, administrators need to historically analyze how the systems hosting these applications/supporting these business services used the physical resources that were at their disposal, identify usage bottlenecks, and if required, recommend changes in system size as part of their capacity plans, so that unpleasant application crashes or service outages can be averted in the future. Such a detailed appraisal of system-level resource usage can be performed using the **Systems Capacity Planning Report**.

For each critical system resource that is monitored (CPU, memory, disk space, disk activity, and bandwidth), this report computes and displays how that resource was utilized on an average (*Avg*) during a given timeline and also computes the *95th percentile* value of the corresponding usage measure. In addition, by comparing the *95 percentile* value with user-configured thresholds for the same, the report promptly detects and highlights resource usage bottlenecks and the severity of these bottlenecks.

To configure the thresholds that should govern the *95th percentile* value of the resource usage measures, do the following:

1. Follow the *Configure -> Reporter -> Capacity Planning Reports* menu sequence.
2. When Figure 3.35 appears, click on the **Configure System Reports** tab page therein. When this is done, the measures that capture system resource usage will be displayed - namely, *CPU utilization*, *Physical memory utilized*, *Percent disk space usage*, *Disk busy percentage*, and *Bandwidth usage*.

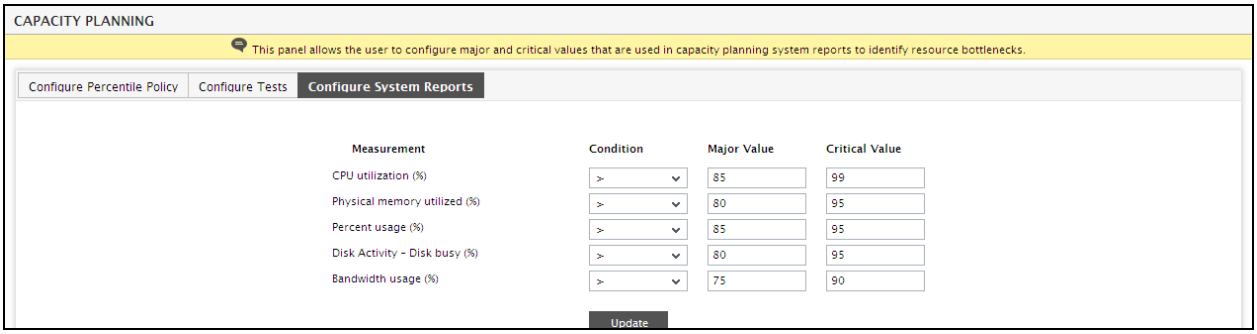


Figure 3.35: Configuring the thresholds that govern the 95th percentile value of resource usage metrics

3. You can change the display name of any of these measures by clicking on the corresponding icon. Doing so will invoke a small **Display name** pop-up (see Figure 3.36), specify the display name of your choice, and click the **Update** button.

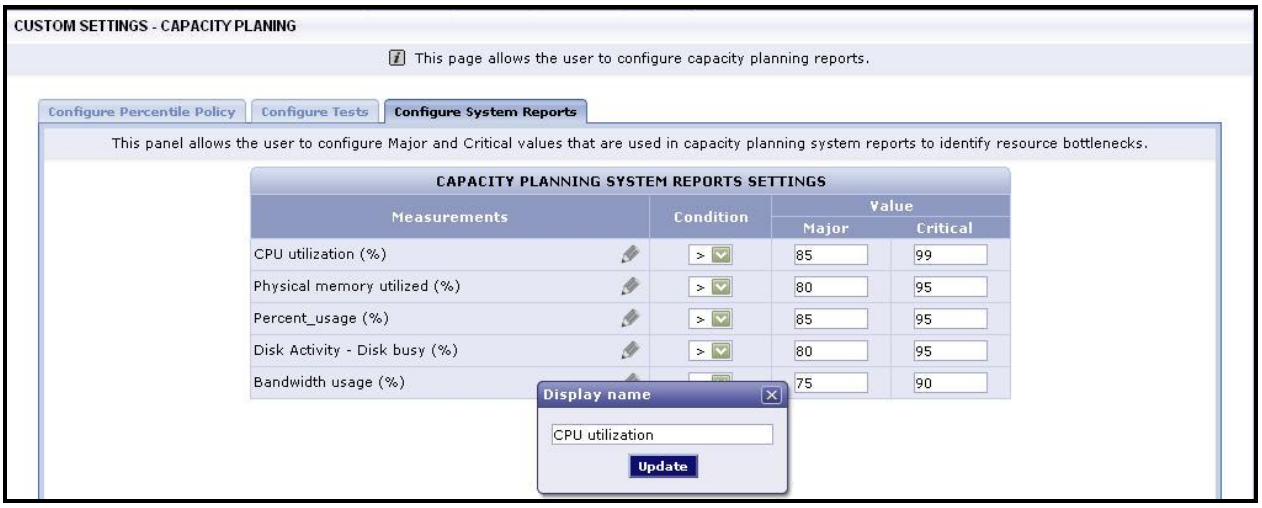

CUSTOM SETTINGS - CAPACITY PLANING
This page allows the user to configure capacity planning reports.
Configure Percentile Policy
Configure Tests
Configure System Reports
This panel allows the user to configure Major and Critical values that are used in capacity planning system reports to identify resource bottlenecks.
CAPACITY PLANNING SYSTEM REPORTS SETTINGS
Measurements
Condition
Value
Major
Critical
CPU utilization (%)
Physical memory utilized (%)
Percent_usage (%)
Disk Activity - Disk busy (%)
Bandwidth usage (%)
Display name
CPU utilization
Update

Figure 3.36: Changing the display name of the measure

4. To begin configuring the thresholds for a measure, pick a **Condition**. This can be > (greater than) or < (lesser than).

5. Then, specify the **Major Value** and/or **Critical Values** (thresholds) for the measure. In the same way, you can configure thresholds for the remaining measures. Finally, click the **Update** button to save the threshold settings.

6. If the **> Condition** is chosen for a measure, then, during report generation, the eG Enterprise system will check whether the 95th percentile value of that measure is 'greater than' its Major threshold configuration or Critical threshold configuration. Likewise, if the **<** Condition is chosen, then the eG Enterprise system will check whether the 95th percentile value is 'lesser than' the Major or Critical threshold configuration. If the **Major threshold has been violated**, then the corresponding measure value will be highlighted in **Orange** in the report. Similarly, a **Critical threshold violation** will result in the 95th percentile value being **highlighted in Red** in the report.

3.8 Procedure for discovering the domains of the Security Groups

The eG Enterprise Suite provides you with a wide range of reports using which you can effectively monitor the target environment. One among the reports that eG offers is the **User Session Details** report which can be generated for each user of Security Group within in a domain. To generate such a report, you would be required to follow the procedure as mentioned below:

1. Follow the menu sequence: *Settings -> Reporter -> AD User Report* in the eG administrative interface. Figure 3.37 will then appear.

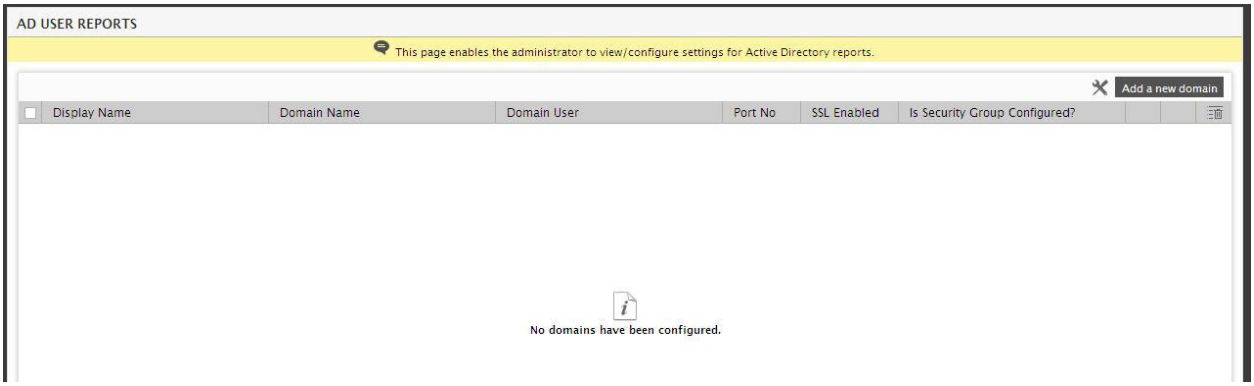


Figure 3.37: The AD User Reports page

2. Clicking the **Add a new domain** button in Figure 3.37 will lead you to Figure 3.38 where you will be required to add the domain of the active directory groups that need to be discovered.

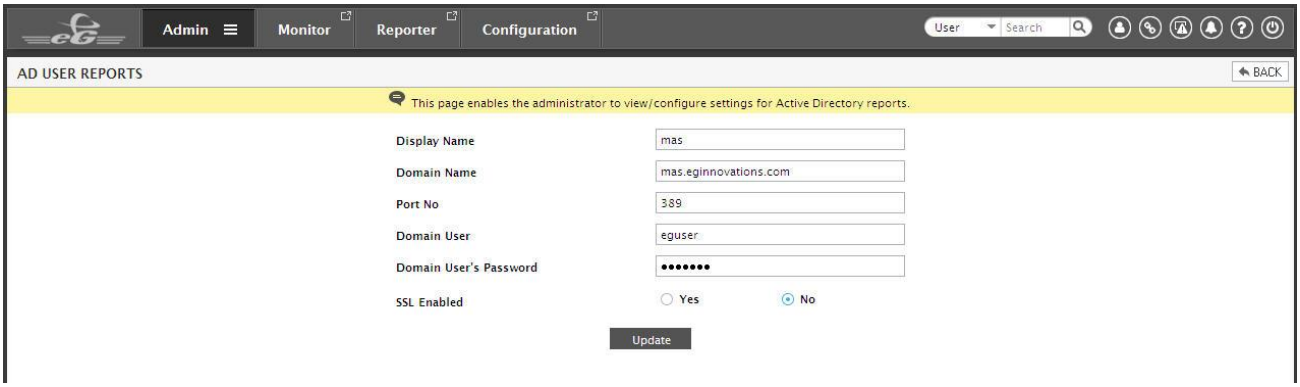


Figure 3.38 : Adding a domain

3. Specify the following in Figure 3.38:
   - First, provide a **Display Name** for the domain.
   - Next, specify the fully qualified **Domain name**.
   - Specify the port at which the domain operates in the **Port No** text box.
   - To connect to the Active Directory server and access the domain user information stored within, the eG manager requires a domain user's privileges. To facilitate this connection, provide a valid domain user's name and password against **Domain User** and **Domain User's Password**.
   - Then, indicate whether the Active Directory server is SSL-enabled or not, by setting the **SSL Enabled** flag to **Yes** or **No**, as the case may be. If the **SSL Enabled** flag is set to **Yes**, then you will have to follow the procedure discussed in the **Appendix** of the eG User manual to ensure that the eG manager is able to communicate with the AD server over SSL.
   - Once the **Update** button is clicked, the domain will be added in the **AD USER REPORTS** page as shown in Figure 3.39.

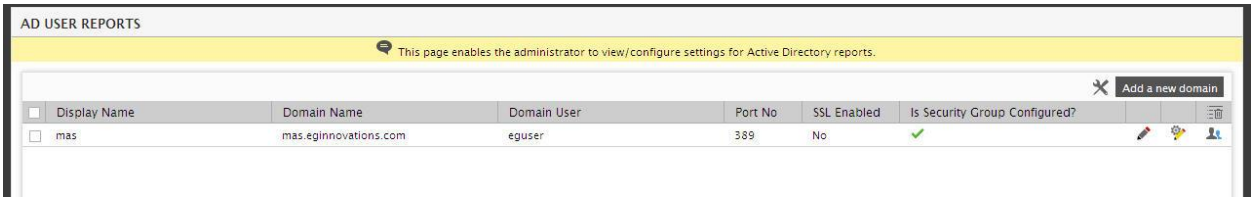


Figure 3.39: Domains configured for generating the User Session Details report

4. In order to select the Security groups for which the **User Session Details** report is to be generated, click on the icon in Figure 3.39. Figure 3.40 will then appear.

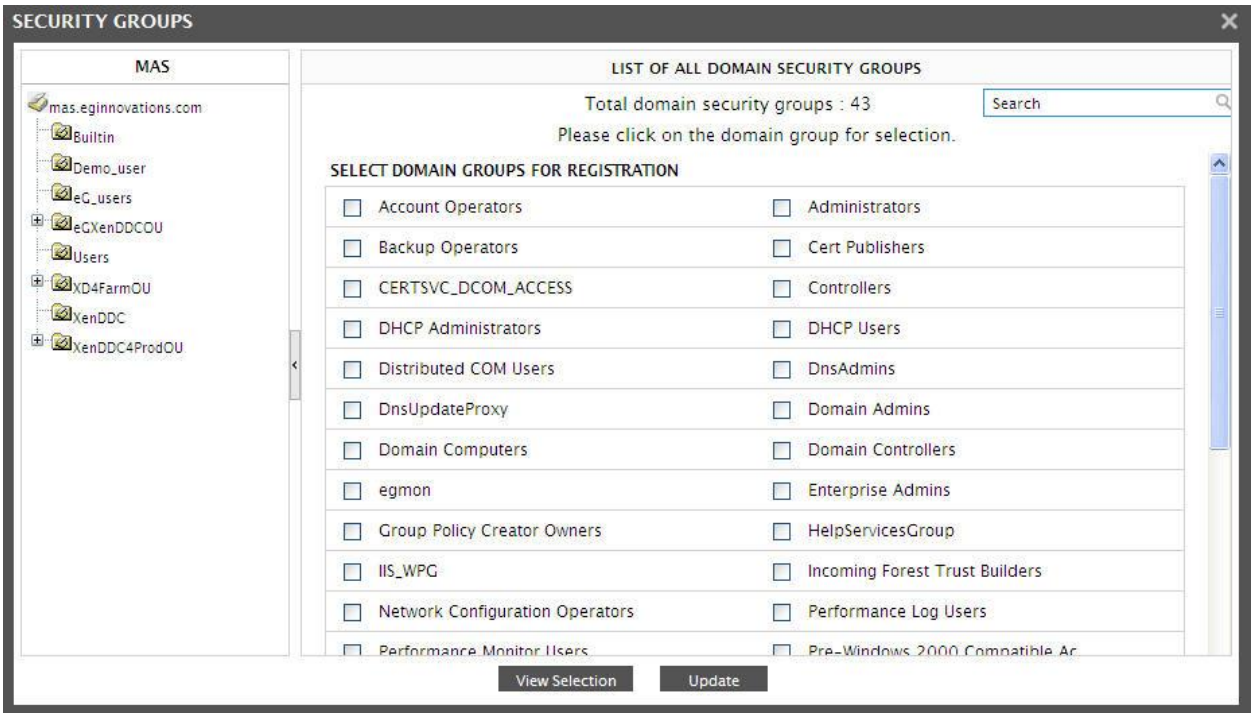


Figure 3.40: Choosing the Security groups for which the User Session Details report is to be generated

5. By default, all the Security groups will be listed in the right panel of Figure 3.40. If you wish to view the Security groups of a chosen Organizational Unit within a domain, then click on the Organizational unit that is available in the left panel of Figure 3.40. Select the Security groups for which the report is to be generated and click the **Update** button.

6. If you wish to view the Security groups that were selected, then, click the **View Selection** button of Figure 3.40. Figure 3.41 will appear listing all the selected Security groups. To search for a particular Security group, use the **Search** text box of Figure 3.40.

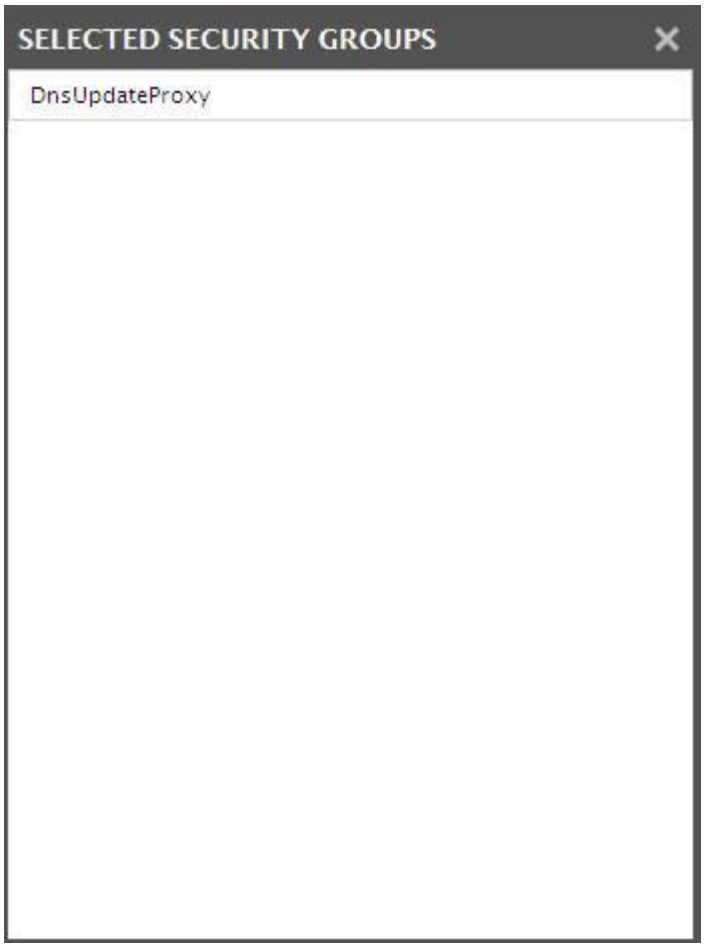


Figure 3.41: Viewing the chosen Security groups

7. Once, the Security groups are selected and updated, click the icon to view the configured Security groups. Figure 3.42 will then appear.

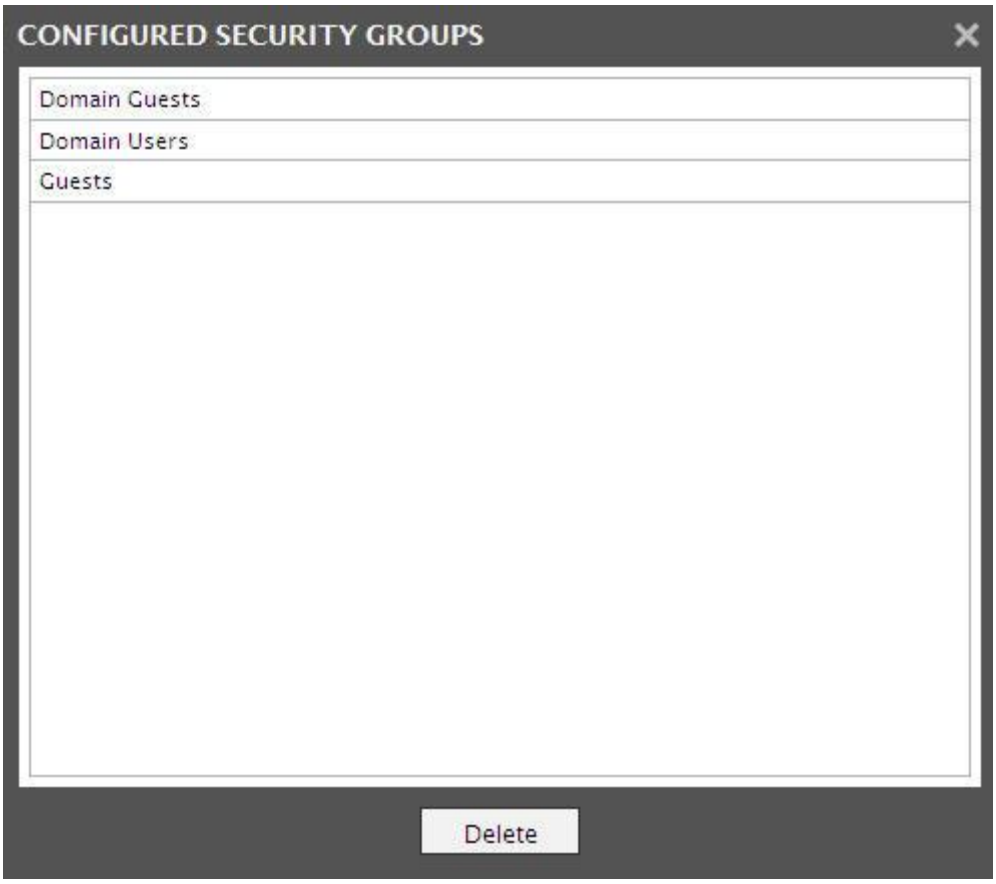


Figure 3.42: Viewing the configured Security groups

8. To modify the Domain, click on the icon (see Figure 3.39).
9. In order to delete a domain or if you do not wish to discover the Security groups of a particular domain, then you can delete the domain by selecting the domain and clicking the icon.
10. Clicking on the icon will lead you to Figure 3.43 using which you can define certain settings for the discovery of the Security groups.

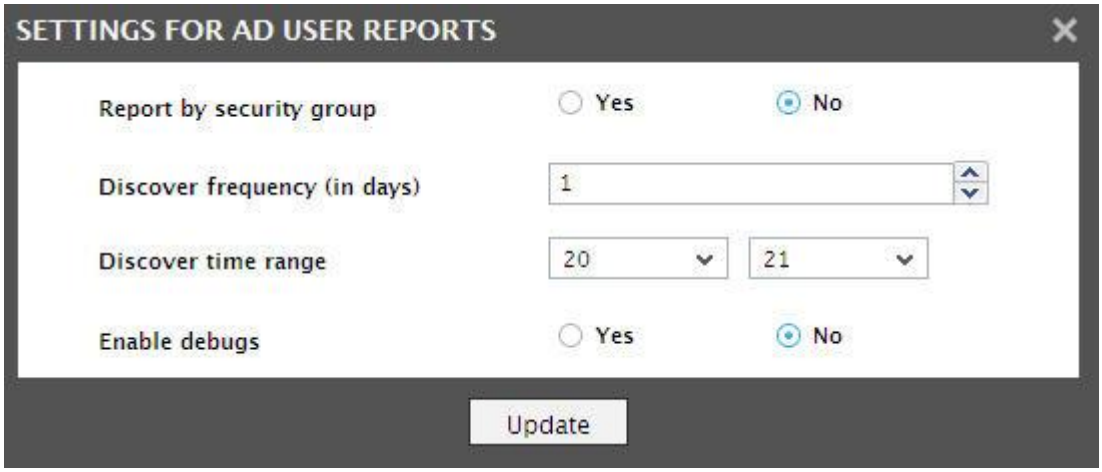


Figure 3.43: Specifying the Settings for discovering the Security groups

11. Figure 3.43 helps you define the following settings for discovering the Security groups:
    - If you wish to generate the report based on active directory groups, then set the **Report by Security group** flag to **Yes**. By default, this flag will be set to **No**.
    - The Security groups can either be discovered on a daily/weekly basis. From the **Discover frequency (in days)** drop-down list, select **1** for a **daily** discovery or **7** for a **weekly** discovery. If you wish to discover the Security groups once in the number of days of your choice, you can do so by selecting a number ranging from 1 to 7 from this list.
    - If the frequency with which the active directory groups have to be discovered is specified, then the time of starting the discovery process also needs to be specified. To do so, select the time duration against the **Discovertime range** list. If you want to start the discovery process between 8 PM and 9 PM, then select 20 from the first list and 21 from the second list. By default, the values specified in these lists are 20 and 21 respectively.
    - If you wish to generate logs using which you can troubleshoot issues in the future, then, select **Yes** against the **Enable debugs** flag. By default, this flag is set to **No**.
    - Clicking the **Update** button will register the changes and help you generate the User Session Details report accordingly.
12. The **User Session Details** report can now be generated for the users within each of the chosen Security groups.

4

The Executive Summary Reports

The report options offered by the **Executive Summary** node of the **RPEORTS BY FUNCTION** tree in the eG Reporter provide a more high-level insight into the performance of the IT infrastructure elements. These reports aid the higher tiers of the management to assess the performance of specific components, segments, services, and component types, identify repeated issues (if any), analyze the root-cause of such issues, and advise a course of action.

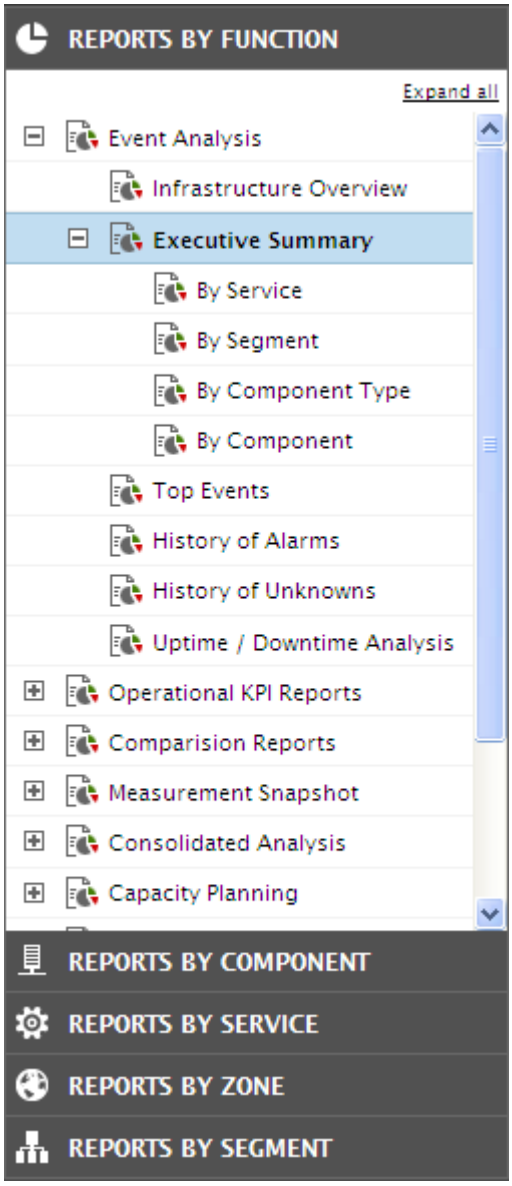


Figure 4.1: Types of Executive Summary Reports

The sections to come will discuss each of these ExecutiveSummary Reports in detail.

4.1 Executive Summary By Component Reports

Using the **Executive Summary By Component reports**, you can receive an overview of the performance of a particular component during a specific period. To achieve the same, do the following:

13. Select the **By Component** option from the **Executive Summary** node of the **REPORTS BY FUNCTION** tree. (see Figure 4.1).
14. From the **Component** list box in the page that appears, select the component for which the executive summary report needs to be viewed (see Figure 4.3). If there are too many components in the list to choose from, you can narrow your search further by using the **Filter by** text box. Specify the whole/part of the component name to search for in this text box, and click the right-arrow button next to it. The **Component** list will then be

populated with all component names that embed the specified search string. Select the component of your choice from this list.

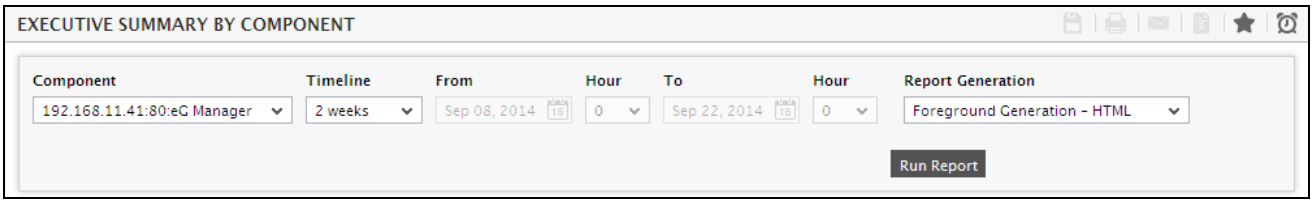


Figure 4.2: Generating the Executive Summary By Component Report

15. Provide a **Timeline** for the report. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

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16. In large environments, reports generated using months of data can take a long time to complete. With eG Enterprise v6, administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

17. Finally, click on the **Run Report** button to generate the report. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report button** will invoke Figure 4.3.

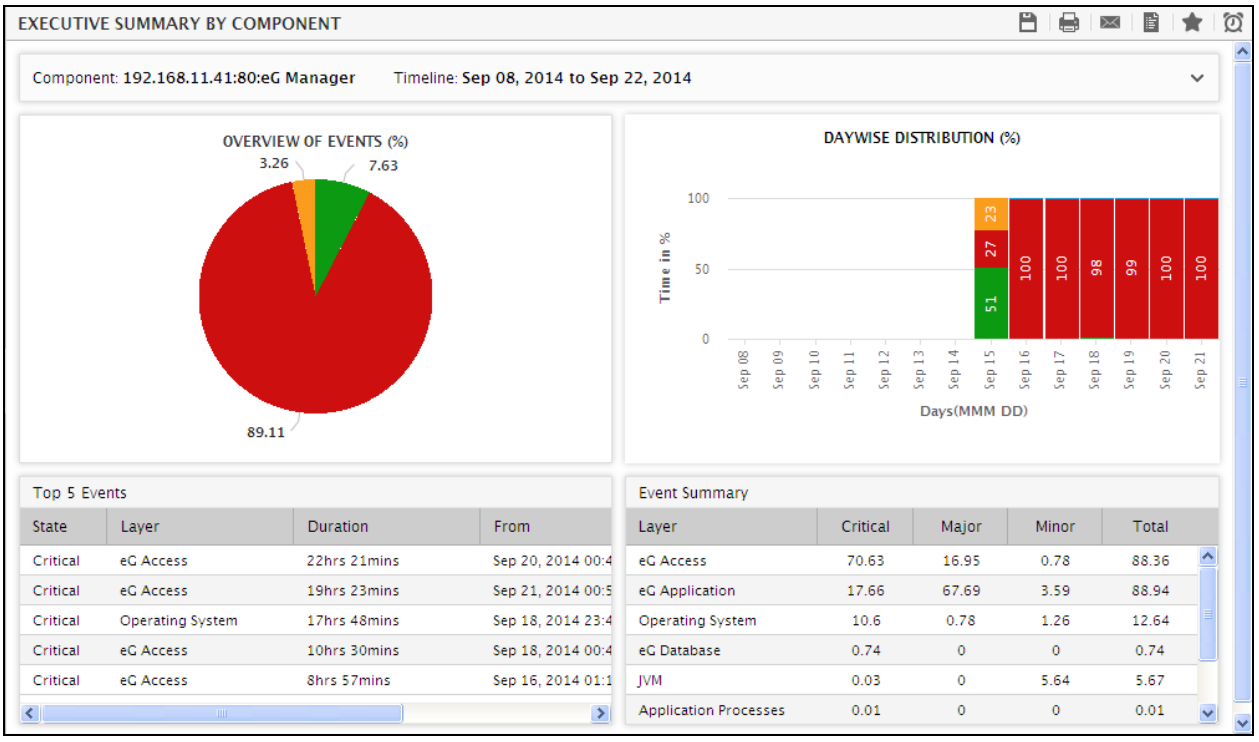

EXECUTIVE SUMMARY BY COMPONENT
Component: 192.168.11.41:80:eG Manager
Timeline: Sep 08, 2014 to Sep 22, 2014
OVERVIEW OF EVENTS (%)
3.26
7.63
89.11
DAYWISE DISTRIBUTION (%)
Time in %
Days(MMM DD)
Top 5 Events
State | Layer | Duration | From
Critical | eG Access | 22hrs 21mins | Sep 20, 2014 00:4
Critical | eG Access | 19hrs 23mins | Sep 21, 2014 00:5
Critical | Operating System | 17hrs 48mins | Sep 18, 2014 23:4
Critical | eG Access | 10hrs 30mins | Sep 18, 2014 00:4
Critical | eG Access | 8hrs 57mins | Sep 16, 2014 01:1
Event Summary
Layer | Critical | Major | Minor | Total
eG Access | 70.63 | 16.95 | 0.78 | 88.36
eG Application | 17.66 | 67.69 | 3.59 | 88.94
Operating System | 10.6 | 0.78 | 1.26 | 12.64
eG Database | 0.74 | 0 | 0 | 0.74
JVM | 0.03 | 0 | 5.64 | 5.67
Application Processes | 0.01 | 0 | 0 | 0.01

Figure 4.3: The generated Executive Summary By Component report

18. There are four sections in the generated report. The first section is a pie chart that provides a bird's-eye view of the health of the component during the designated period. The slices of the pie chart and their respective colors represent the percentage of time the component has been in different states (Normal, Critical, Major, Minor, and Unknown).

19. To facilitate quick and accurate root-cause identification, the eG Reporter component includes a unique drill-down feature. To use this feature, click on a problem (Critical/Major/Minor) slice in the pie chart. This will lead you to the **Snapshot Report** of the chosen component (see Figure 4.4) for the chosen period. The snapshot will reveal the measures that were responsible for the problem conditions indicated by the slice clicked on. For more details on **Snapshot Reports**, refer to Chapter 1 .

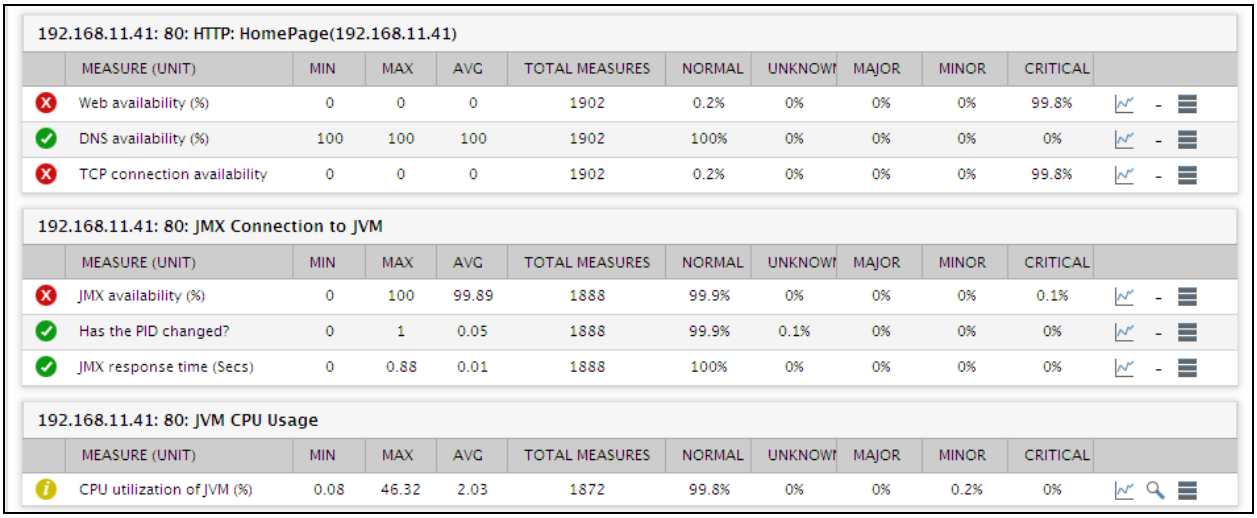

192.168.11.41: 80: HTTP: HomePage(192.168.11.41)
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
Web availability (%) 0 0 0 1902 0.2% 0% 0% 0% 99.8%
DNS availability (%) 100 100 100 1902 100% 0% 0% 0% 0%
TCP connection availability 0 0 0 1902 0.2% 0% 0% 0% 99.8%
192.168.11.41: 80: JMX Connection to JVM
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
JMX availability (%) 0 100 99.89 1888 99.9% 0% 0% 0% 0.1%
Has the PID changed? 0 1 0.05 1888 99.9% 0.1% 0% 0% 0%
JMX response time (Secs) 0 0.88 0.01 1888 100% 0% 0% 0% 0%
192.168.11.41: 80: JVM CPU Usage
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
CPU utilization of JVM (%) 0.08 46.32 2.03 1872 99.8% 0% 0% 0.2% 0%

Figure 4.4: The Snapshot that appears when a slice in the pie chart is clicked

20. The second section of the Executive Summary By Component report depicts how well the component has performed on a daily basis during the specified period. The information depicted here enables an executive to detect the daily trends in the performance of the component. Here again, the various divisions within a bar and their respective colors denote the state variations in the component during the given period. The height of a division depends upon the duration (in minutes) for which the component has remained in a particular state.

By default, the **DAYWISE DISTRIBUTION** section of this page depicts the duration for which a component has remained in a particular state, in minutes. Instead, if you prefer to view the percentage of time during a day a component was in any particular state, set the **Daywise distribution reports in** flag in the **MONITOR SETTINGS** page (Configure -> Settings menu in the eG administrative interface) to **Percentage**.

21. If you click on a bar corresponding to a particular date, then, a **Snapshot Report** of the chosen component for that date will be displayed (see Figure 4.5).

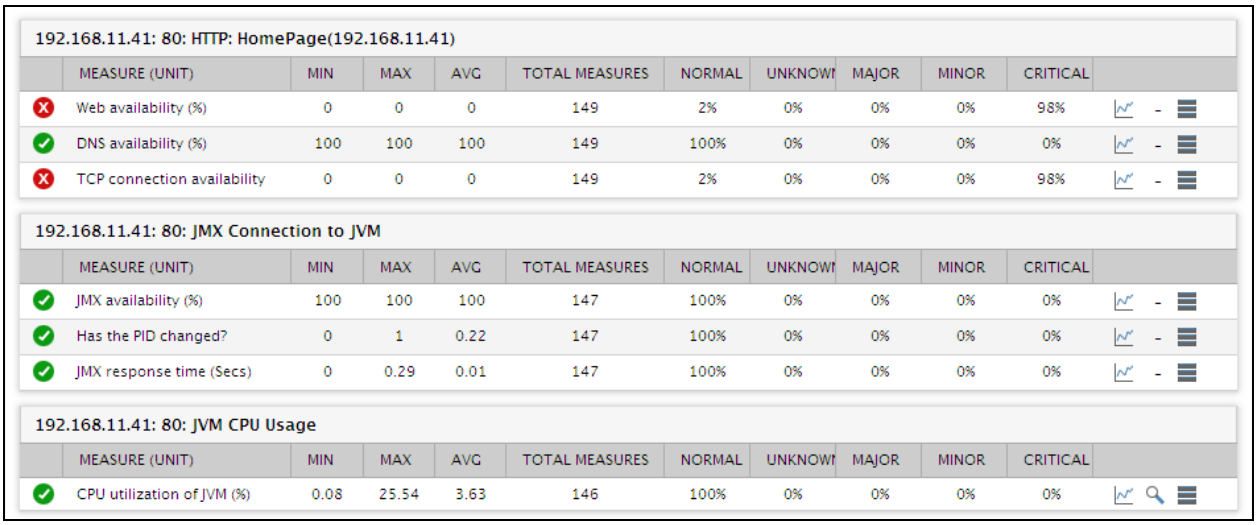

192.168.11.41: 80: HTTP: HomePage(192.168.11.41)
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
Web availability (%) 0 0 0 149 2% 0% 0% 0% 98%
DNS availability (%) 100 100 100 149 100% 0% 0% 0% 0%
TCP connection availability 0 0 0 149 2% 0% 0% 0% 98%
192.168.11.41: 80: JMX Connection to JVM
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
JMX availability (%) 100 100 100 147 100% 0% 0% 0% 0%
Has the PID changed? 0 1 0.22 147 100% 0% 0% 0% 0%
JMX response time (Secs) 0 0.29 0.01 147 100% 0% 0% 0% 0%
192.168.11.41: 80: JVM CPU Usage
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
CPU utilization of JVM (%) 0.08 25.54 3.63 146 100% 0% 0% 0% 0%

Figure 4.5: The Snapshot Report which appears when the bar corresponding to a particular date is clicked

22. The third section of the Executive Summary By Component report is a summary table that highlights the top five alarms that have remained for the longest duration. The details displayed include the alarm priority, the **Layer** in which the problem was detected, the **Duration** of the problem, the date and time of problem occurrence (**From**) and the date and time of problem resolution (**To**). This information will help an executive figure out which layers were responsible for some of the worst problems in the component. It is also a good indicator of the efficiency of the administrative staff in fixing issues. If an entry in the **To** column is prefixed by the phrase "Open @" it indicates that the problem remained open until the end of the chosen **Timeline**. To zero-in on the exact problem that affected a layer for the displayed **Duration**, click on the layer name hyperlink. An **Event History** page (see Figure 4.6) will appear, listing the performance metrics that deviated causing the layer to suffer for the displayed **Duration**.

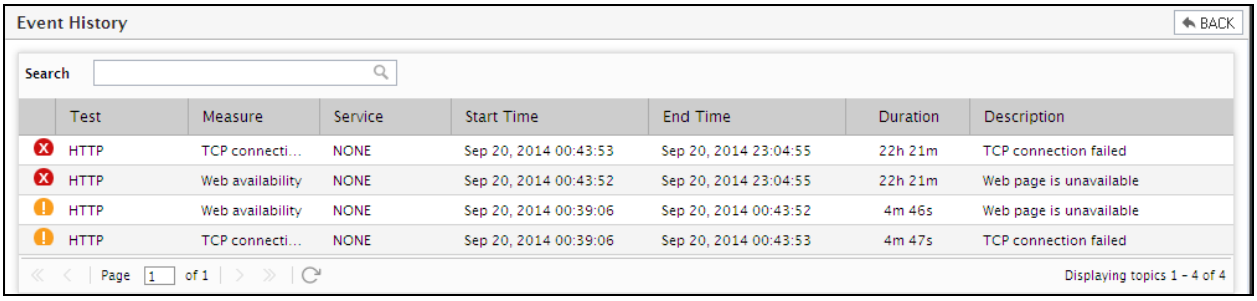

Event History
BACK
Search
Test Measure Service Start Time End Time Duration Description
HTTP TCP connecti... NONE Sep 20, 2014 00:43:53 Sep 20, 2014 23:04:55 22h 21m TCP connection failed
HTTP Web availability NONE Sep 20, 2014 00:43:52 Sep 20, 2014 23:04:55 22h 21m Web page is unavailable
HTTP Web availability NONE Sep 20, 2014 00:39:06 Sep 20, 2014 00:43:52 4m 46s Web page is unavailable
HTTP TCP connecti... NONE Sep 20, 2014 00:39:06 Sep 20, 2014 00:43:53 4m 47s TCP connection failed
Page 1 of 1
Displaying topics 1 - 4 of 4

Figure 4.6: The history of alarms corresponding to the layer clicked on

23. The fourth section of the Executive Summary By Component report (see Figure 4.3) is an event summary, which lists all the layers in the layer model of the chosen component, and displays the percentage of time during the specified **Timeline** a layer encountered Critical/Major/Minor issues. This event summary, when viewed along with the top 5 summary, will enable you to accurately identify the problem-prone layers of the component (see Figure 4.3). Clicking on a layer name here will enable you to view all the measures that were responsible for the problems in the layer during the chosen period (see Figure 4.7).

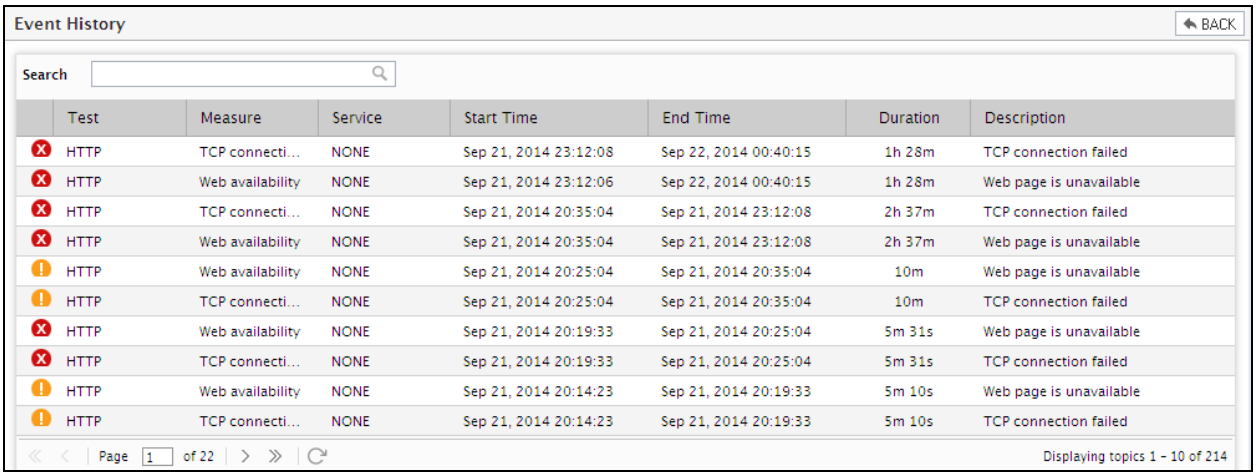

Event History
BACK
Search
Test
Measure
Service
Start Time
End Time
Duration
Description
HTTP TCP connecti... NONE Sep 21, 2014 23:12:08 Sep 22, 2014 00:40:15 1h 28m TCP connection failed
HTTP Web availability NONE Sep 21, 2014 23:12:06 Sep 22, 2014 00:40:15 1h 28m Web page is unavailable
HTTP TCP connecti... NONE Sep 21, 2014 20:35:04 Sep 21, 2014 23:12:08 2h 37m TCP connection failed
HTTP Web availability NONE Sep 21, 2014 20:35:04 Sep 21, 2014 23:12:08 2h 37m Web page is unavailable
HTTP Web availability NONE Sep 21, 2014 20:25:04 Sep 21, 2014 20:35:04 10m Web page is unavailable
HTTP TCP connecti... NONE Sep 21, 2014 20:25:04 Sep 21, 2014 20:35:04 10m TCP connection failed
HTTP Web availability NONE Sep 21, 2014 20:19:33 Sep 21, 2014 20:25:04 5m 31s Web page is unavailable
HTTP TCP connecti... NONE Sep 21, 2014 20:19:33 Sep 21, 2014 20:25:04 5m 31s TCP connection failed
HTTP Web availability NONE Sep 21, 2014 20:14:23 Sep 21, 2014 20:19:33 5m 10s Web page is unavailable
HTTP TCP connecti... NONE Sep 21, 2014 20:14:23 Sep 21, 2014 20:19:33 5m 10s TCP connection failed
Page 1 of 22
Displaying topics 1 - 10 of 214

Figure 4.7: The history of alarms pertaining to the layer clicked on

24. To view the data that is plotted on the bar graph of Figure 4.3, click on the **DATA** button therein. Figure 4.8 will then appear. You can print the data or save it as a **CSV** file by clicking on the required icons at the right, top corner of Figure 4.8.

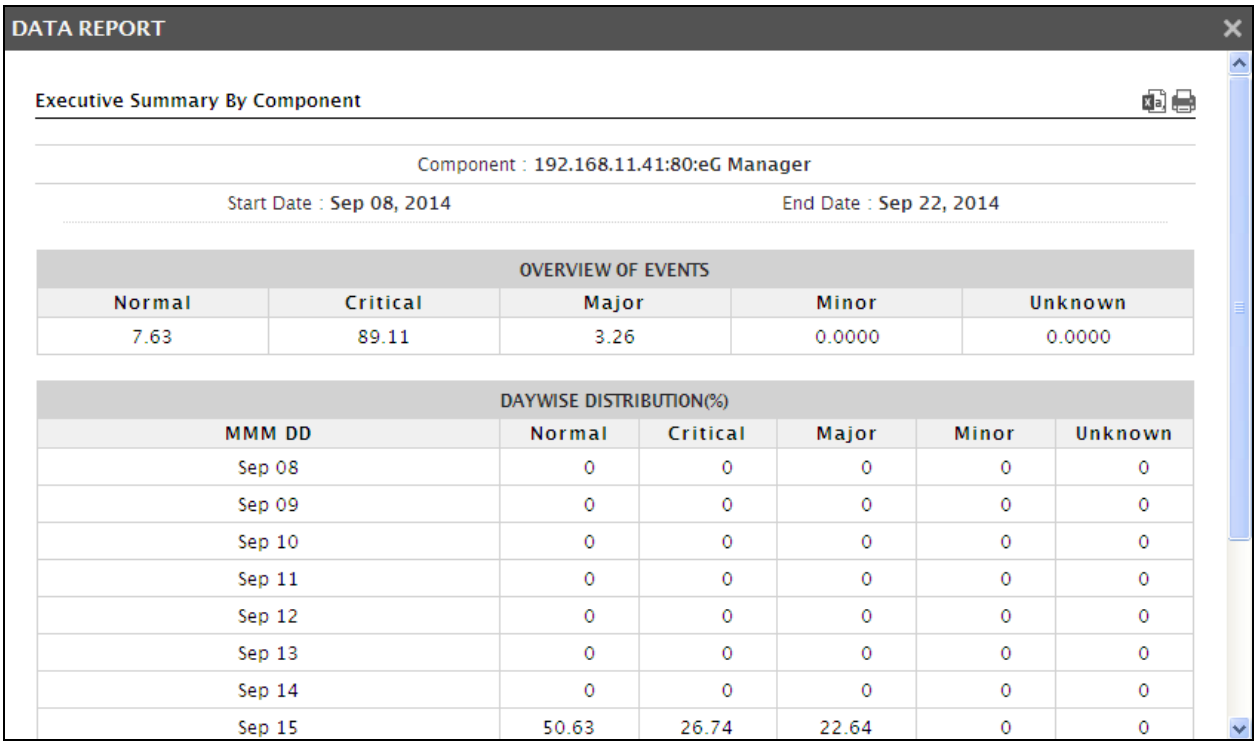

DATA REPORT
Executive Summary By Component
Component : 192.168.11.41:80:eG Manager
Start Date : Sep 08, 2014
End Date : Sep 22, 2014
OVERVIEW OF EVENTS
Normal Critical Major Minor Unknown
7.63 89.11 3.26 0.0000 0.0000
DAYWISE DISTRIBUTION(%)
MMM DD Normal Critical Major Minor Unknown
Sep 08 0 0 0 0 0
Sep 09 0 0 0 0 0
Sep 10 0 0 0 0 0
Sep 11 0 0 0 0 0
Sep 12 0 0 0 0 0
Sep 13 0 0 0 0 0
Sep 14 0 0 0 0 0
Sep 15 50.63 26.74 22.64 0 0

Figure 4.8: Data plotted on the bar graph

25. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then, clicking on the **Run Report button** will not invoke the report. Instead, a message depicted by Figure 4.9 will appear.

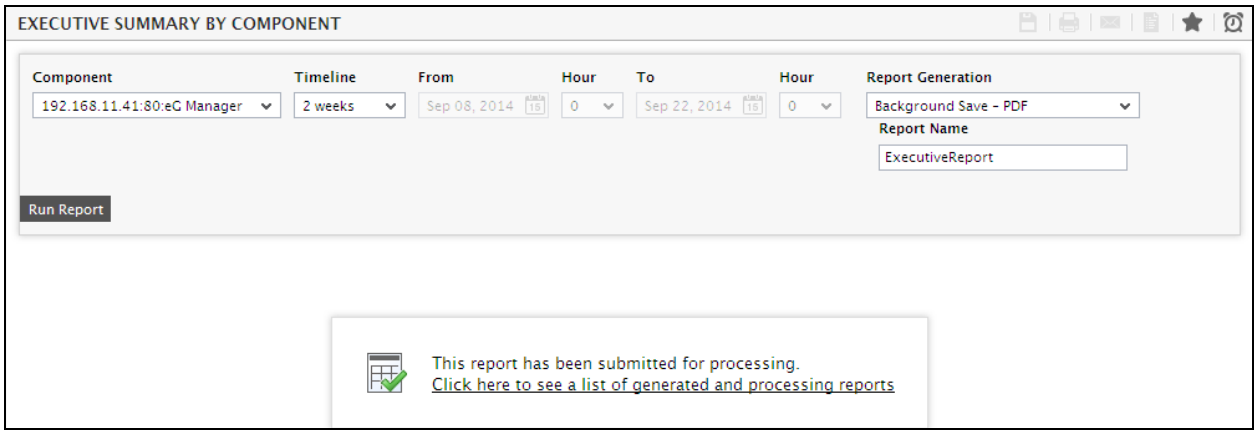


Figure 4.9: A message indicating that the report is being processed in the background

26. To view the report, click on the **Click here to see a list of generated and processing reports** link in Figure 4.9.
27. Figure 4.10 will then appear listing the executive reports that have been scheduled for background generation.

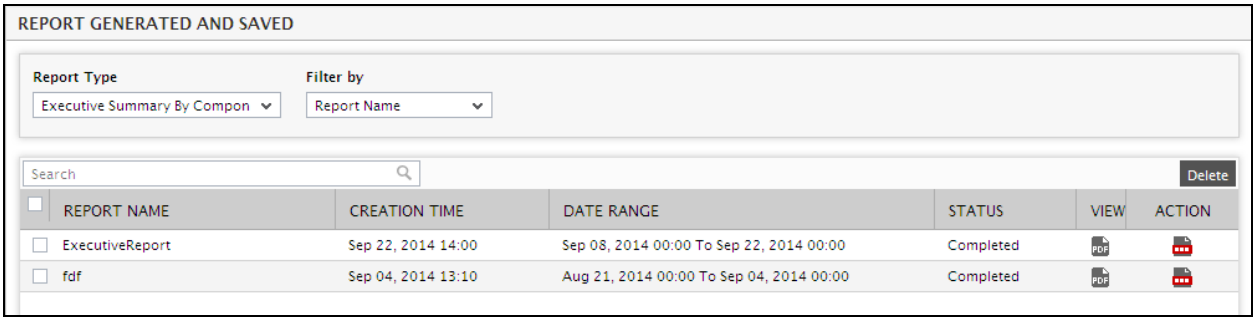


Figure 4.10: List of Background reports

28. Alongside a report name in this page, you can view when background processing of the report started (**Creation Time**), the report **Timeline**, the **Date Range** for which the report was generated, and the **Status** of the background processing of the report. Once processing completes, the report is saved as a PDF file.
29. If the **Status** column corresponding to a report displays **Completed**, then, you can view the report as a PDF by clicking on the PDF icon against that report. If for some reason background processing fails, then the **Status** column will display **Failed** instead. In this case, you can either regenerate the report in the background, or delete the report. To regenerate the report, click on the icon.
30. If this page lists too many reports, then, you can apply one/more filter criteria on the list, so that you can quickly view information related to only those background reports that are of specific interest to you. For instance, to view the background reports of a particular type alone, select a **Report Type** from this page. To view details pertaining to all background reports, pick the **All Report Types** option from the **Report Type** list.
31. Similarly, you can view the status of a particular report, by doing the following:
    - Pick **Report Name** from the **Filter by** list.
    - Specify the whole/part of the report name in the **Search** text box and click the right-arrow button next to it.
    - The page will then display the details of only that background report, which has the name provided in the **Search** text box.
32. In the same way, you can even search for reports by status. For this, do the following:

- Pick **Status** from the **Filter by** list.
- Specify the status to search for in the **Search** text box and click the right-arrow button next to it.
- The page will then display the details of only those background reports which are in the state provided in the **Search** text box.

33. To delete any of the listed reports, click on the check box alongside the report, and then click on the **DELETE** button in this page (see Figure 4.11). To delete all the listed reports, first, click on the check box adjacent to the column heading, **Report TYPE**; this will mark all the reports displayed in this page for deletion. Then, click on the **DELETE** button.

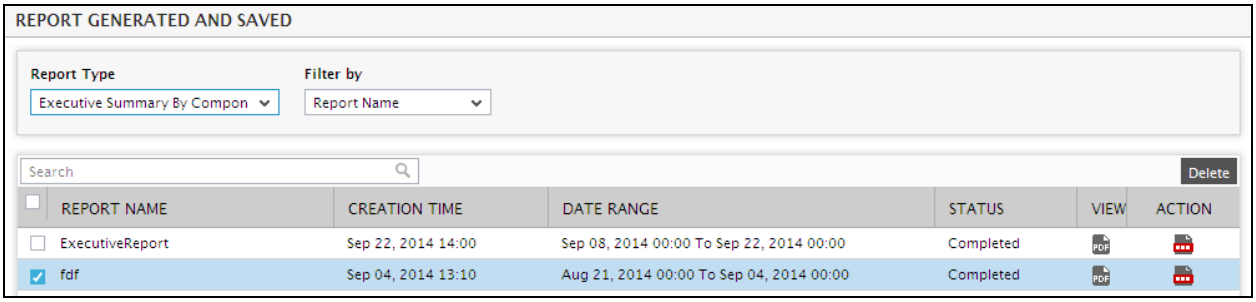


Figure 4.11: Deleting a background report

4.2 Executive Summary By Segment Reports

Using **Executive Summary By Segment reports**, an executive can receive an overview of the performance of a particular segment during a specific period. To achieve the same, do the following:

1. Select the **By Segment** option from the **Executive Summary** node of the **REPORTS BY FUNCTION** tree of Figure 4.1. Figure 4.12 will then appear.

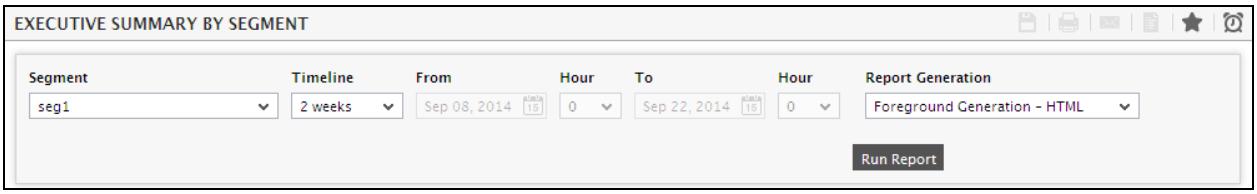


Figure 4.12: Generating an Executive Summary By Segment report

2. From the **Segment** list box in the page that appears (see Figure 4.12), select the segment for which the executive summary report needs to be viewed.
3. Provide a **Timeline** for the report. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

4. In large environments, reports generated using months of data can take a long time to complete. With eG Enterprise v5, administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

5. Finally, click on the **RUN REPORT BUTTON** to generate the report. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **RUN REPORT BUTTON** will invoke Figure 4.13.

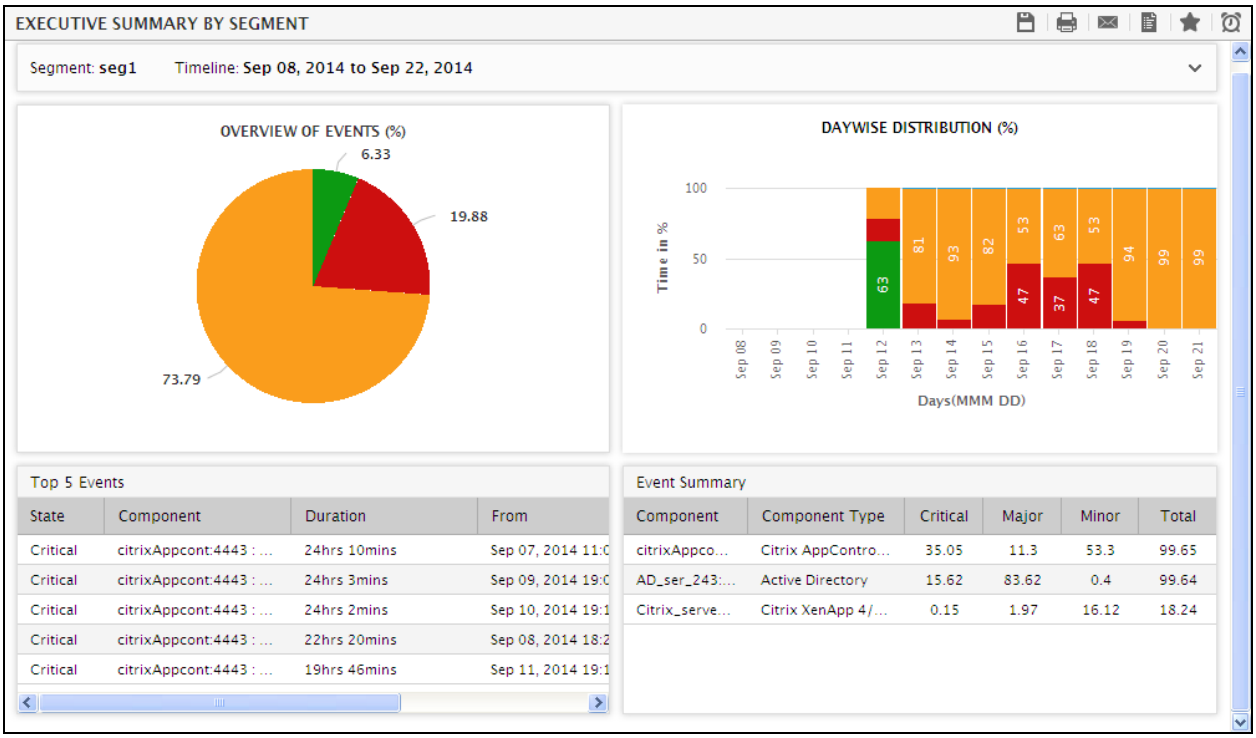


Figure 4.13: The Executive Summary By Segment Report

6. There are four sections in the generated report. The first section is a pie chart that provides a bird's-eye view of the health of the segment during the designated period. The slices of the pie chart and their respective colors represent the percentage of time the segment has been in different states (Normal, Critical, Major, Minor, and Unknown).

7. If a slice in the pie chart reveals problems with the segment, then you can zoom into the segment component causing these problems, by clicking on the slice. Doing so will reveal the **Executive Summary Report** of the segment **Component** that was most affected by the problems indicated by the slice clicked on, during the specified period. For example, if you click on the Critical slice in the pie chart of Figure 4.13, then Figure 4.14 will appear. Using the **Executive Summary By Segment report** of Figure 4.14, you can conclude that the Active Directory server in the segment was the one that suffered the maximum number of critical issues during the specified period. This in turn would have affected the functioning of the entire segment.

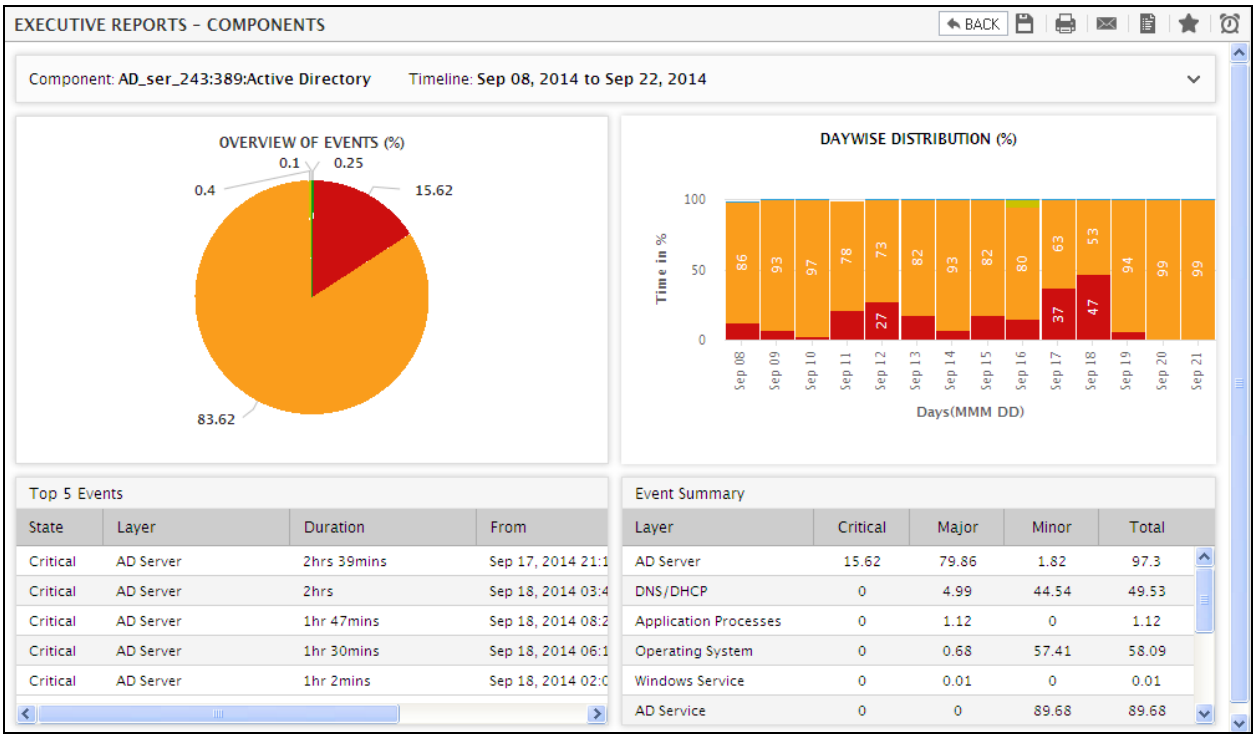


Figure 4.14: The Executive Summary report of the Component that is the root-cause of the problems in the segment

8. The second section of the Executive Summary Report for a segment is a bar graph that depicts how well the segment has performed on a daily basis during the specified period. The information depicted here will enable an executive to detect the daily trends in the performance of the segment. Here again, the various divisions within a bar and their respective colors denote the state variations in the segment during the given period. The height of a division depends upon the duration (in minutes) for which the component has remained in a particular state.

Note

- The state of a segment is determined based on the states of its individual components. If any component of a segment is in a critical state, the segment state is regarded as being critical.
- By default, the **DAYWISE DISTRIBUTION** section of this page depicts the duration for which a segment has remained in a particular state, in minutes. Instead, if you prefer to view the percentage of time during a day a segment was in any particular state, set the **Daywise distribution reports in** flag in the **MONITOR SETTINGS** page (Configure -> Monitor Settings menu in the eG administrative interface) to **Percentage**.

---

9. To know the root-cause of the Critical/Major/Minor problems that have occurred in the segment on a particular day, simply click on the corresponding division in the bar of Figure 4.13. The **Executive Summary Report** of the segment **Component** that has caused the problem (Critical/Major/Minor) on that day will appear (see Figure 4.15). For example, if you click on the Critical division in the bar corresponding to a day of the chosen **Timeline**,

Figure 4.15 will appear displaying the **Executive Summary Report** of the Active Directory server component that encountered the maximum number of critical issues on that day.

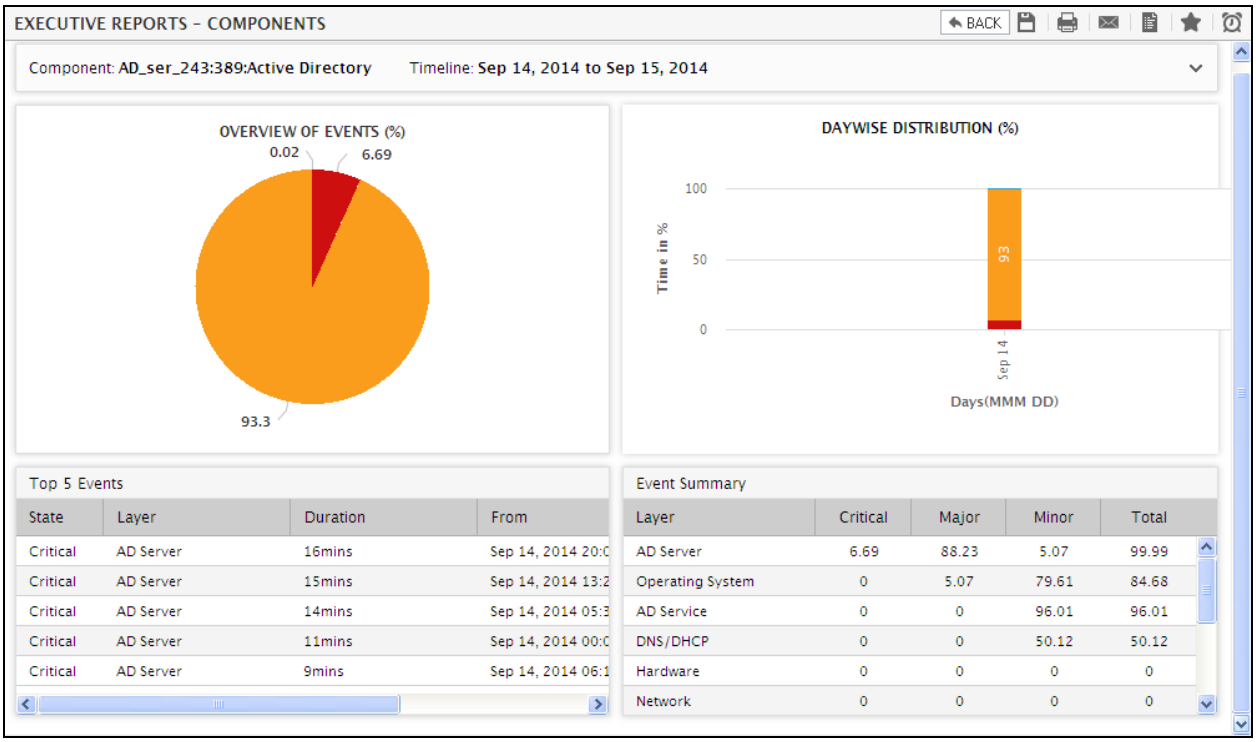


Figure 4.15: The Executive Report of the Component causing problems in the segment on a particular day

10. The third section of the Executive Summary By Segment Report is a summary table that highlights the top five alarms that have remained for the longest duration. The details displayed include the alarm priority, the segment **Component** in which the problem was detected, the **Duration** of the problem, the date and time of problem occurrence (**From**) and the date and time of problem resolution (**To**). This information will help an executive figure out which components were responsible for some of the worst problems in the segment.

11. Click on the **Component** in this section to view the **Executive Report** of that **Component** for the specified period (see Figure 4.16). For example, clicking on the **CitrixAppController** in Figure 4.13 will reveal the **Executive Summary Report** of Figure 4.16.

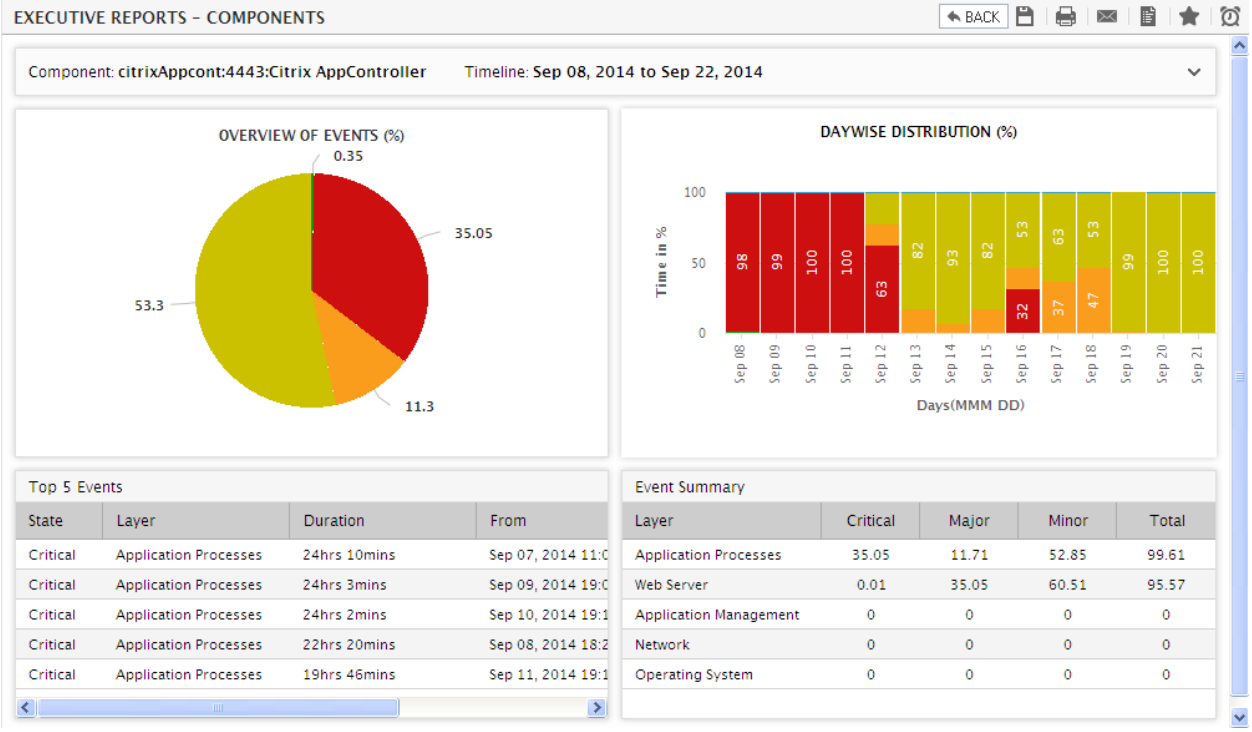

EXECUTIVE REPORTS - COMPONENTS
BACK
Component: citrixAppcont:4443:Citrix AppController
Timeline: Sep 08, 2014 to Sep 22, 2014
OVERVIEW OF EVENTS (%)
0.35
35.05
53.3
11.3
DAYWISE DISTRIBUTION (%)
Time in %
100
50
0
98 99 100 100 63 82 93 82 53 63 53 99 100 100
32 37 47
Sep 08 Sep 09 Sep 10 Sep 11 Sep 12 Sep 13 Sep 14 Sep 15 Sep 16 Sep 17 Sep 18 Sep 19 Sep 20 Sep 21
Days(MMM DD)
Top 5 Events
State | Layer | Duration | From
Critical | Application Processes | 24hrs 10mins | Sep 07, 2014 11:0
Critical | Application Processes | 24hrs 3mins | Sep 09, 2014 19:0
Critical | Application Processes | 24hrs 2mins | Sep 10, 2014 19:1
Critical | Application Processes | 22hrs 20mins | Sep 08, 2014 18:2
Critical | Application Processes | 19hrs 46mins | Sep 11, 2014 19:1
Event Summary
Layer | Critical | Major | Minor | Total
Application Processes | 35.05 | 11.71 | 52.85 | 99.61
Web Server | 0.01 | 35.05 | 60.51 | 95.57
Application Management | 0 | 0 | 0 | 0
Network | 0 | 0 | 0 | 0
Operating System | 0 | 0 | 0 | 0

Figure 4.16: The Executive Summary By Component Report that appears when a component is clicked on

12. The fourth section of the **Executive Summary By Segment** report is another event summary, which not only lists all the components in the chosen segment, but also indicates the percentage of time a component was faced with Critical, Major, or Minor performance issues. This event summary, when viewed along with the top 5 summary, will help you accurately identify the problem-prone components of the segment.

13. Click on the **Component** in this section to view the **Executive Summary Report** of that **Component** for the chosen period. Clicking on the **Component Type** hyperlink, will lead you to the **Executive Report** of that particular **Component Type** for the specified timeline (see Figure 4.17). This will help you assess the performance of the component type as a whole during that timeline.

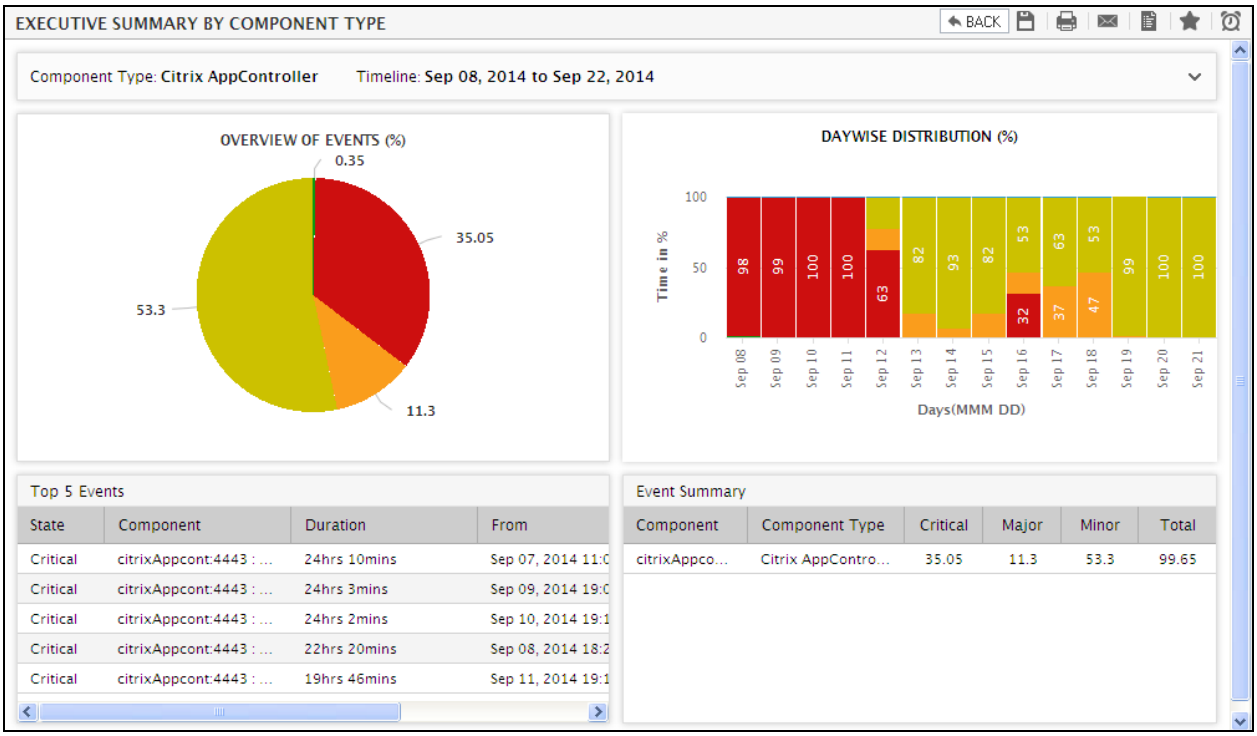


Figure 4.17: Executive Report of the Component Type that is clicked on

14. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then, clicking on the **RUN REPORT BUTTON** will not invoke the report. Instead, a message depicted by Figure 4.9 will appear. To view the report, click on the **Click here to see a list of generated and processing reports** link in Figure 4.9, and proceed as indicated in Section 4.1 of this document.

4.3 Executive Summary By Service Reports

Using the **Executive Summary By Service reports**, an executive can receive a broad idea about the performance of a particular service during a specific period. To generate this report, do the following:

1. Select the **By Service** option from the **Executive Summary** node of the **REPORTS BY FUNCTION** tree of Figure 4.1.
2. From the **Service** list box in the page that appears next (see Figure 4.18), select the service for which the executive summary report needs to be viewed.

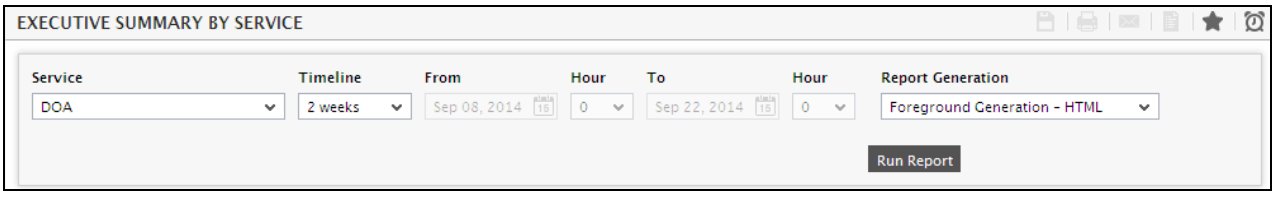


Figure 4.18: Generating an Executive Summary By Service Report

3. Provide a **Timeline** for the report. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

4. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

5. Finally, click on the **Run Report button** to generate the report. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report button** will invoke Figure 4.19.

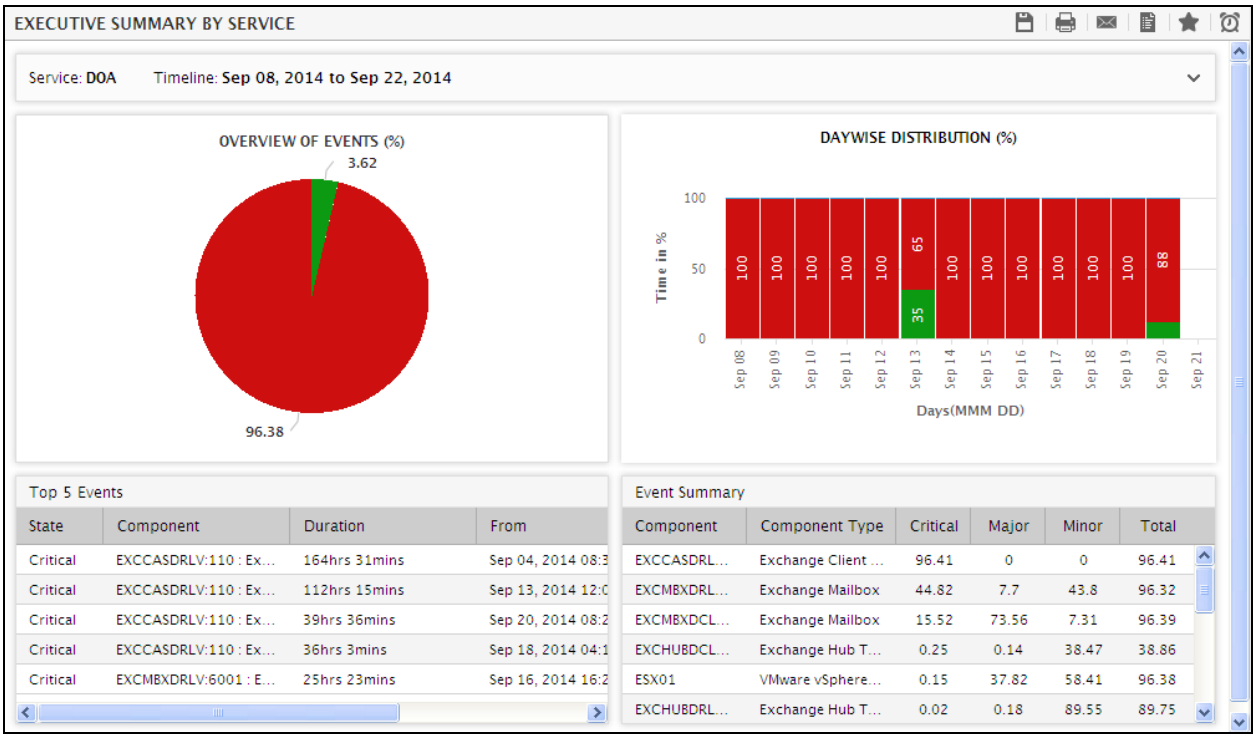


Figure 4.19: The Executive Summary By Service Report

6. There are four sections in the generated report (see Figure 4.19). The first section is a pie chart that provides a bird's-eye view of the health of the service during the designated period. The slices of the pie chart and their respective colors represent the percentage of time the service has been in different states (Normal, Critical, Major, Minor, and Unknown).

7. To drill down to the root-cause of the problems indicated by a slice in the pie chart, click on the slice. When this is done, you will be lead to the **Executive Summary Report** of exactly that component (associated with the chosen service), the performance of which was badly hit by the problems indicated by the slice clicked on. For example, Figure 4.20 will appear when the 'Critical' slice in the pie chart of Figure 4.19 is clicked.

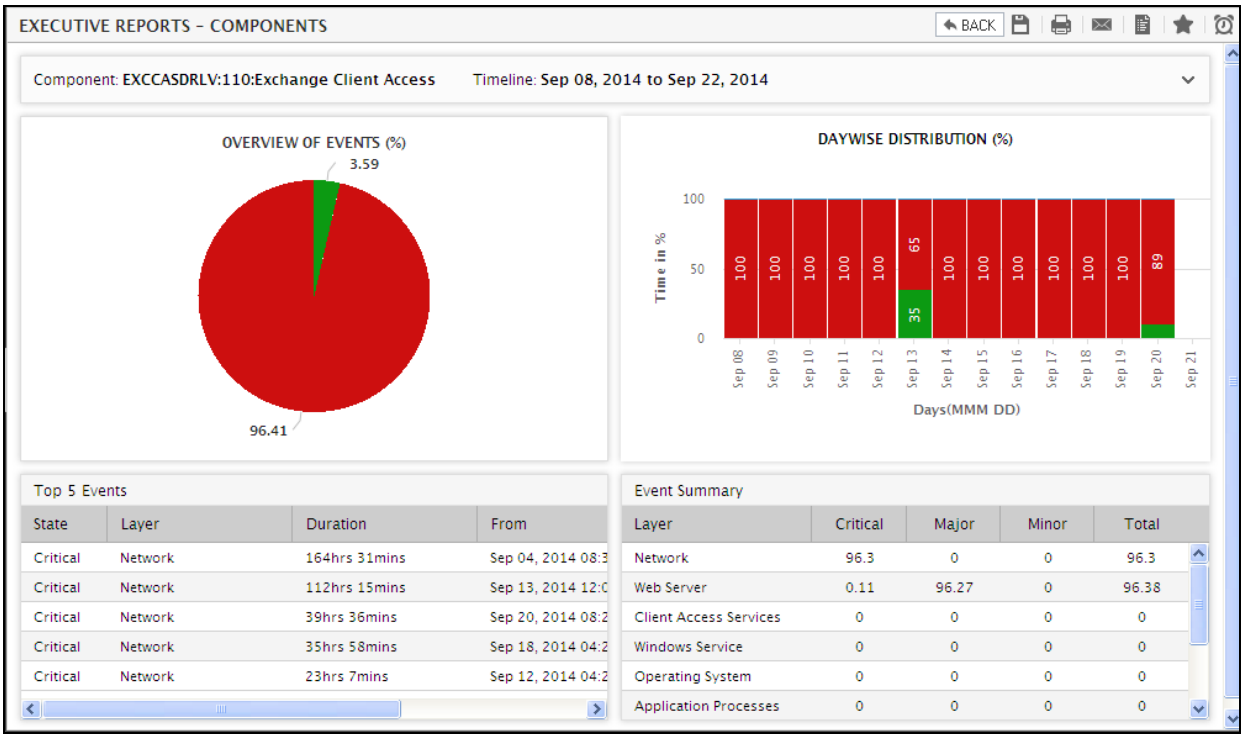

EXECUTIVE REPORTS - COMPONENTS
BACK
Component: EXCCASDRLV:110:Exchange Client Access
Timeline: Sep 08, 2014 to Sep 22, 2014
OVERVIEW OF EVENTS (%)
3.59
96.41
DAYWISE DISTRIBUTION (%)
Time in %
Days(MMM DD)
Top 5 Events
State Layer Duration From
Critical Network 164hrs 31mins Sep 04, 2014 08:3
Critical Network 112hrs 15mins Sep 13, 2014 12:0
Critical Network 39hrs 36mins Sep 20, 2014 08:2
Critical Network 35hrs 58mins Sep 18, 2014 04:2
Critical Network 23hrs 7mins Sep 12, 2014 04:2
Event Summary
Layer Critical Major Minor Total
Network 96.3 0 0 96.3
Web Server 0.11 96.27 0 96.38
Client Access Services 0 0 0 0
Windows Service 0 0 0 0
Operating System 0 0 0 0
Application Processes 0 0 0 0

Figure 4.20: Executive Summary Report of the Component causing problems in the service performance

8. From Figure 4.20, it is evident that the Exchange Client Access server is responsible for all the critical problems in the service during the given timeline.

9. The second section of **Executive Summary By Service Report** is a bar graph that depicts how well the service has performed on a daily basis during the specified period. The information depicted here will enable an executive to detect the daily trends in the performance of the service. Here again, the various divisions within a bar and their respective colors denote the state variations in the service during the given period. The height of a division depends upon the duration (in minutes) for which the service has remained in a particular state.

Note

By default, the **DAYWISE DISTRIBUTION** section of this page depicts the duration for which a segment has remained in a particular state, in minutes. Instead, if you prefer to view the percentage of time during a day a segment was in any particular state, set the **Daywise distribution reports in** flag in the **MONITOR SETTINGS** page (Configure -> Monitor Settings menu in the eG administrative interface) to **Percentage**.

---

10. When you click on a problem division in the bar, you will be able to view the **Executive Report** of the **Component**, which was the root-cause for the occurrence of that problem in the service on that particular day. For example, say, that you click on the Critical division in the bar that corresponds to 13th September 2014 of the chosen timeline. Doing so will open Figure 4.21, which clearly indicates that the Exchange Client Access server is responsible for all the Criticalr problems in the service on the 13th of September 2014.

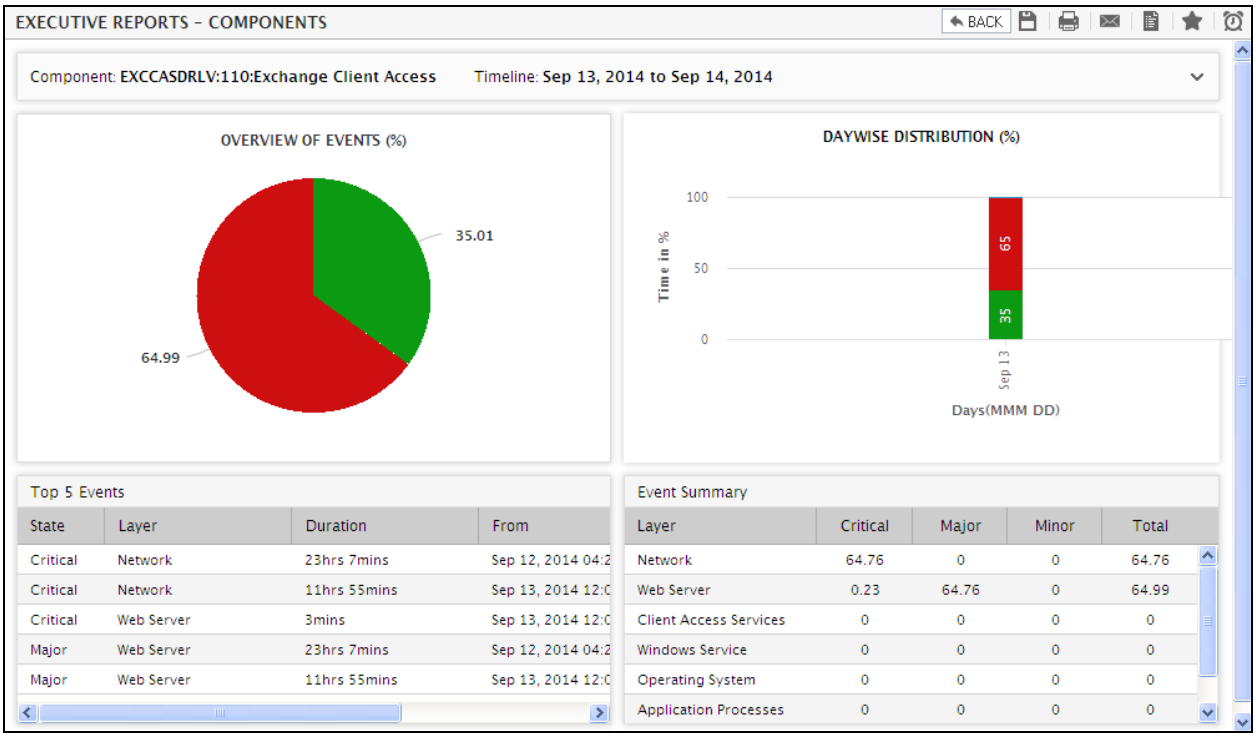

EXECUTIVE REPORTS - COMPONENTS
BACK
Component: EXCCASDRLV:110:Exchange Client Access
Timeline: Sep 13, 2014 to Sep 14, 2014
OVERVIEW OF EVENTS (%)
35.01
64.99
DAYWISE DISTRIBUTION (%)
100
50
0
Time in %
65
35
Sep 13
Days(MMM DD)
Top 5 Events
State | Layer | Duration | From
Critical | Network | 23hrs 7mins | Sep 12, 2014 04:2
Critical | Network | 11hrs 55mins | Sep 13, 2014 12:0
Critical | Web Server | 3mins | Sep 13, 2014 12:0
Major | Web Server | 23hrs 7mins | Sep 12, 2014 04:2
Major | Web Server | 11hrs 55mins | Sep 13, 2014 12:0
Event Summary
Layer | Critical | Major | Minor | Total
Network | 64.76 | 0 | 0 | 64.76
Web Server | 0.23 | 64.76 | 0 | 64.99
Client Access Services | 0 | 0 | 0 | 0
Windows Service | 0 | 0 | 0 | 0
Operating System | 0 | 0 | 0 | 0
Application Processes | 0 | 0 | 0 | 0

Figure 4.21: Executive Summary Report of the Component on a particular day

11. The third section is a summary table that highlights the top five alarms that have remained for the longest duration. The details displayed include the alarm priority, the service **Component** in which the problem was detected, the **Duration** of the problem, the date and time of problem occurrence (**From**) and the date and time of problem resolution (**To**). This information will help an executive figure out which components were responsible for some of the most severe problems in the service.

The state of a service is determined based on the states of its individual components. If any component of a service is in a critical state, the service is regarded as being in a critical state.

12. Click on the **Component** of your choice in this section to view the **Executive Summary report** of that **Component** for the specified period (see Figure 4.22).

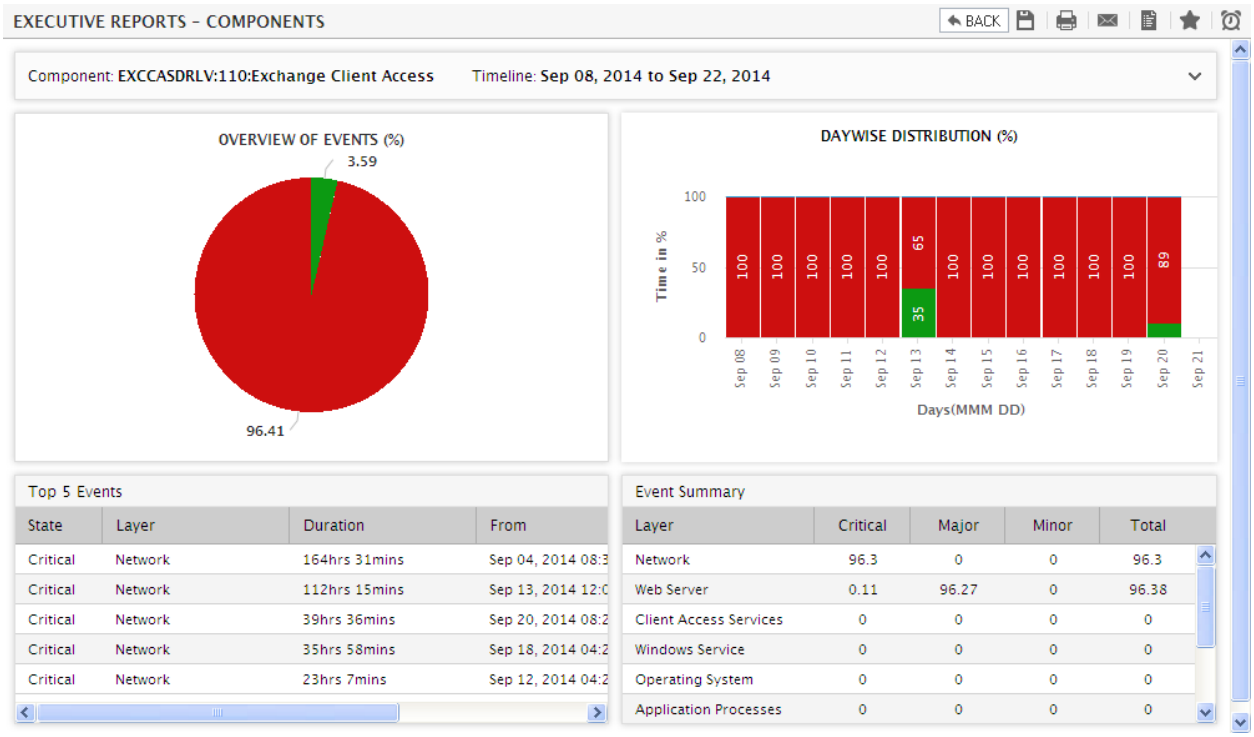


Figure 4.22: Executive Summary Report of the Component that is clicked

13. The fourth section of the Executive Summary By Service Report is another event summary, which not only lists all the components associated with the service, but also indicates the percentage of time a component encountered Critical, Major, or Minor issues. This event summary, when viewed along with the top 5 summary, will help you accurately identify the problem-prone components of the service. Clicking on the Component name will reveal the **Executive Summary Report** of that component for the chosen **Timeline** (see Figure 4.23).

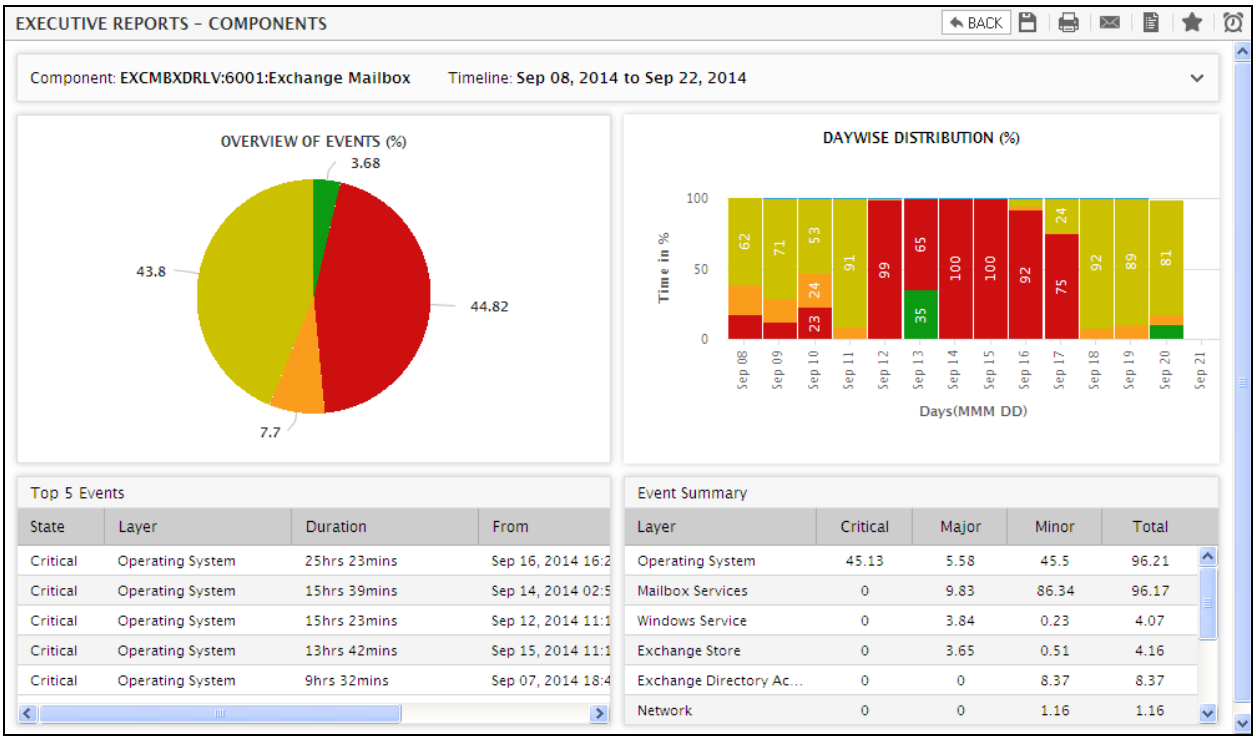


Figure 4.23: Executive Report of the Component that was clicked on

14. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then, clicking on the **Run Report** button will not invoke the report. Instead, a message depicted by Figure 4.9 will appear. To view the report, click on the Click here to see a list of generated and processing reports link in Figure 4.9, and proceed as indicated in Section 4.1 of this document.

4.4 Executive Summary By Component Type Reports

Using **Executive Summary By Component Type** reports, an executive can receive a broad idea about the performance of a particular component type during a specific period. To generate such a report, do the following:

1. Select the **By Component Type** option from the **EXECUTIVE SUMMARY** node of the **REPORTS BY FUNCTION** tree (see Figure 4.1).
2. From the **Component Type** list box that appears, select the component-type for which the executive report needs to be viewed.

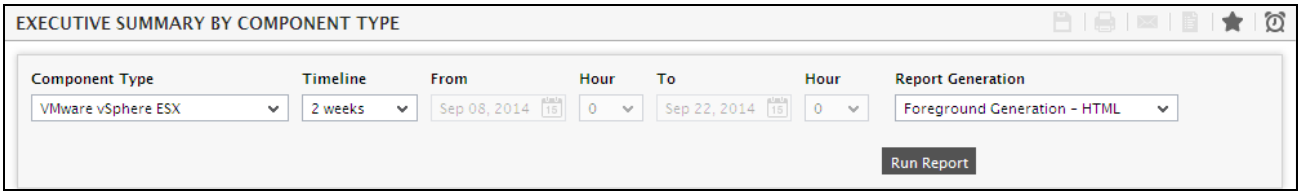


Figure 4.24: Generating an Executive Summary By Component Type Report

3. Provide a **Timeline** for the report. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

4. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

5. Finally, click on the **RUN REPORT BUTTON** to generate the report. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **RUN REPORT BUTTON** will invoke Figure

4.25.

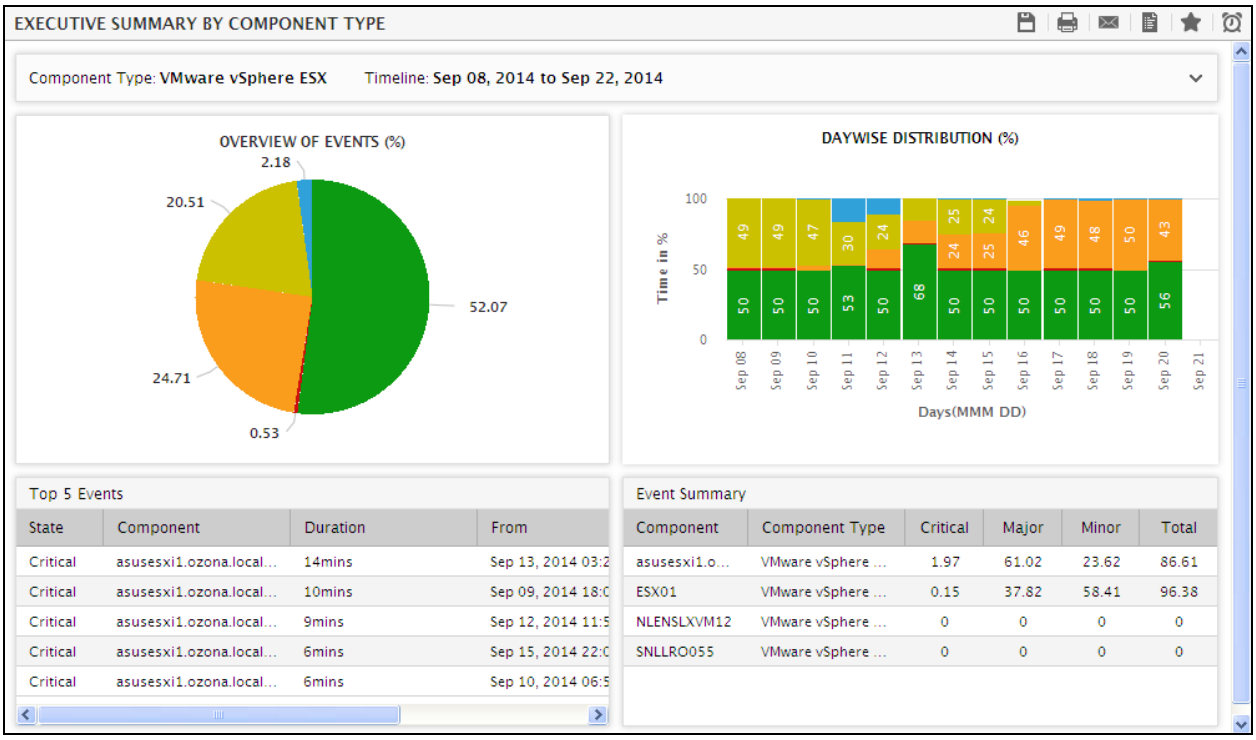


Figure 4.25: The Executive Summary By Component Type Report

6. There are four sections in the generated report (see Figure 4.25). The first section is a pie chart that provides a bird's-eye view of the health of the component type during the designated period. The slices of the pie chart and their respective colors represent the percentage of time the component type has been in different states (Normal, Critical, Major, Minor, and Unknown).

7. In order to identify the root-cause of the problems denoted by a particular slice in the pie chart, click on the slice. This will invoke the **Executive Summary report** of that **Component** of the chosen type that was primarily responsible for the performance degradation suffered by the component type during the time frame specified (see Figure 4.26).

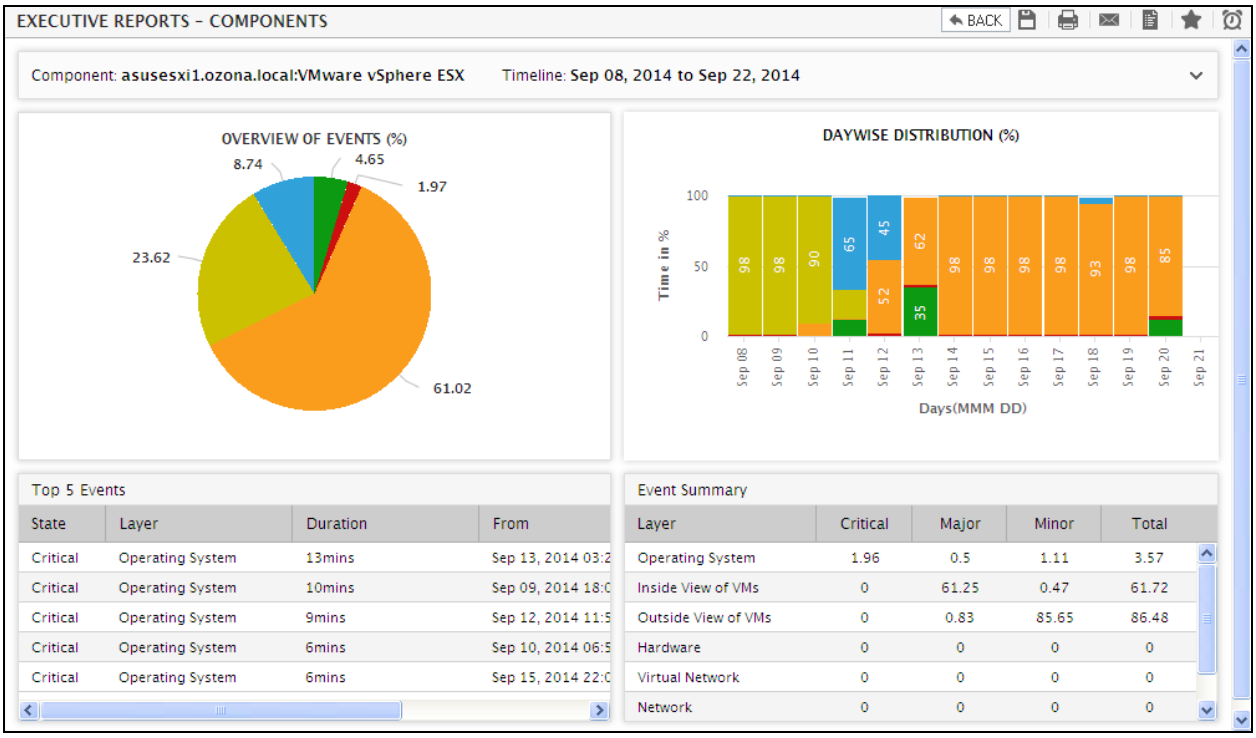


Figure 4.26: Executive Summary report of the Component that belongs to the Component Type

8. The second section of the report is a bar graph that depicts how well the component type has performed on a daily basis during the specified period. The information depicted here will enable an executive to detect the daily trends in the performance of the **Component Type**. Here again, the various divisions within a bar and their respective colors denote the state variations in the component type during the given period. The height of a division depends upon the duration (in minutes) for which the components of the chosen type have remained in a particular state.

Note

By default, the **DAYWISE DISTRIBUTION** section of this page depicts the duration for which a segment has remained in a particular state, in minutes. Instead, if you prefer to view the percentage of time during a day a segment was in any particular state, set the **Daywise distribution reports in** flag in the **MONITOR SETTINGS** page (Configure -> Monitor Settings menu in the eG administrative interface) to **Percentage**.

---

9. To figure out the root-cause of the problems indicated by a particular division in a bar, click on the division. When this is done, Figure 4.27 will appear displaying the **Executive Summary report** of that **Component**, which faced the maximum number of these problems on that particular day.

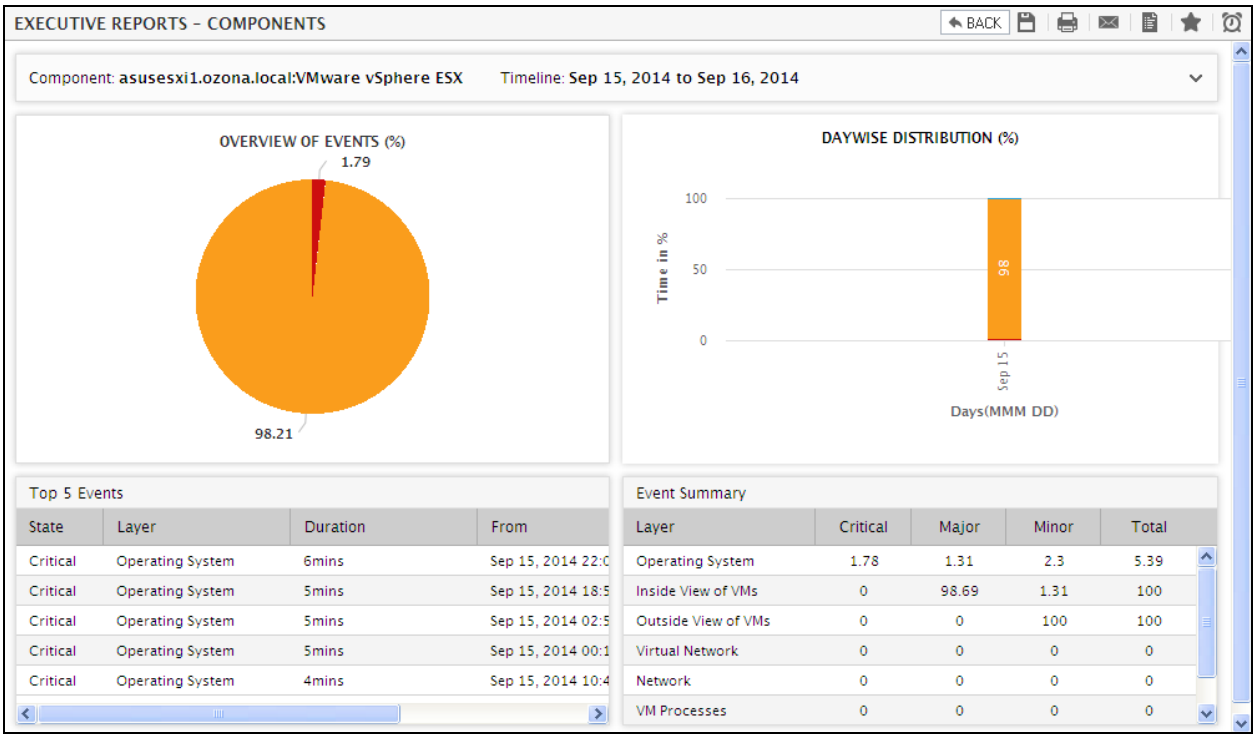


Figure 4.27: Executive Summary Report of the Component causing a fall in the performance of the Component Type

10. The third section is a summary table that highlights the top five alarms that have remained for the longest duration. The details displayed include the alarm priority, the **Component** (of the chosen type) in which the problem was detected, the **Duration** of the problem, the date and time of problem occurrence (**From**) and the date and time of problem resolution (**To**). This information will help an executive figure out which components were responsible for some of the worst problems of the component type.

11. Click on the **Component** of your choice in this section to view the **Executive Summary report** of that **Component** for the chosen period (see Figure 4.28).

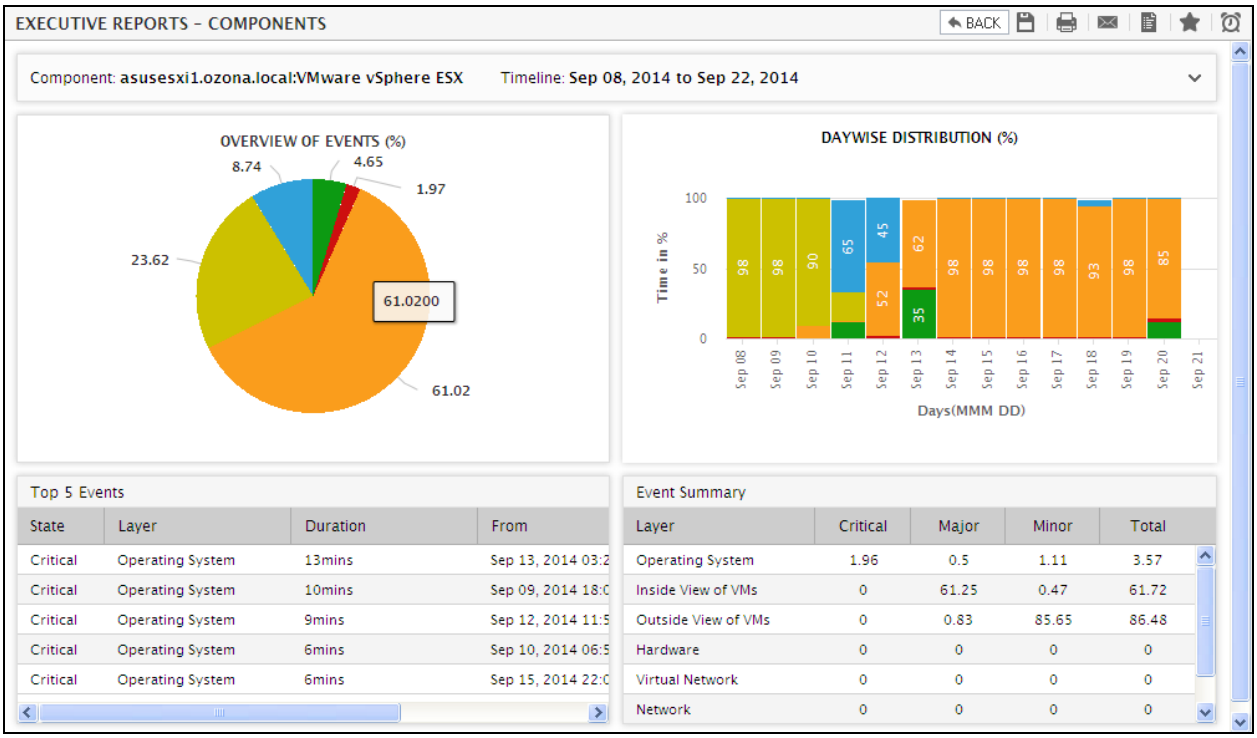


Figure 4.28: Executive Summary report of the Component that is clicked on

12. The fourth section of the Executive Summary report not only lists the components that were affected during the specified period, but also the percentage of time each of the components suffered Critical, Major, and Minor issues. This event summary, when viewed along with the top five summary, will help an executive identify the problem-prone components of the component type.

13. Click on the **Component** of your choice in this section to view the **Executive Report** of that **Component** for the chosen period (see Figure 4.29).

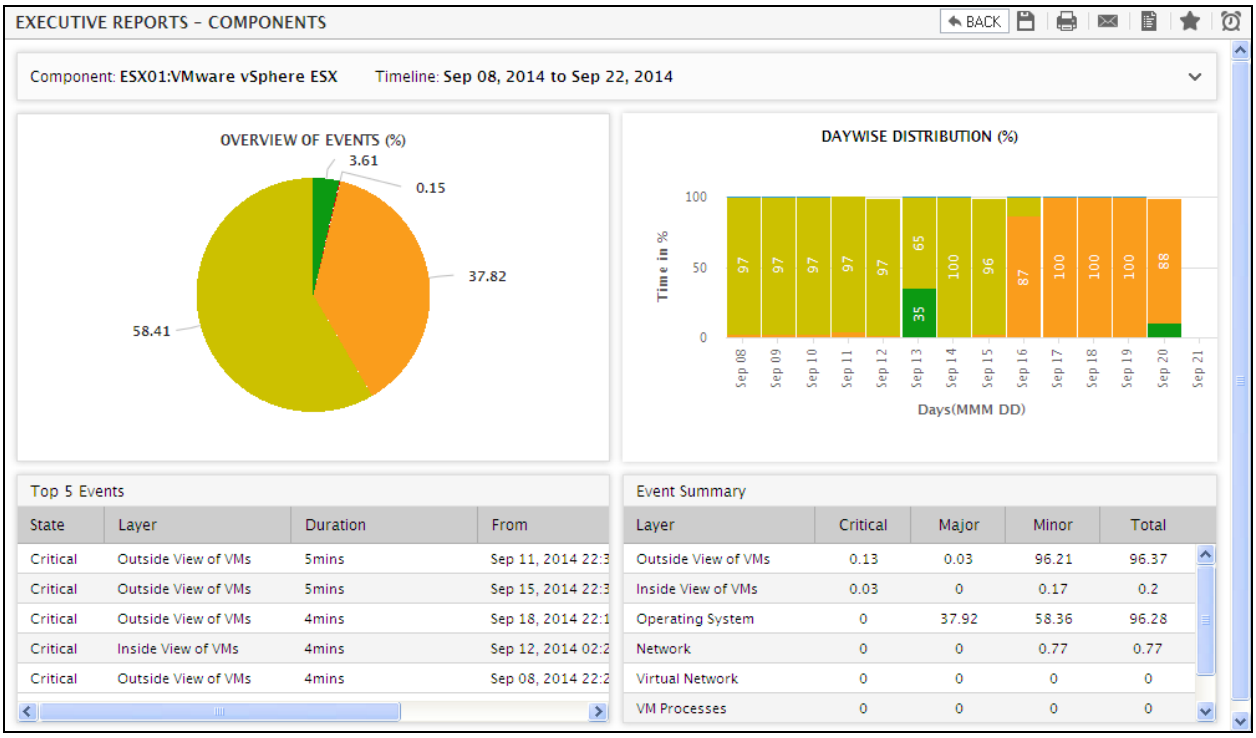


Figure 4.29: Executive Summary report of the Component clicked on in the SUMMARY OF EVENTS section

14. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then, clicking on the **RUN REPORT BUTTON** will not invoke the report. Instead, a message depicted by Figure 4.9 will appear. To view the report, click on the **Click here to see a list of generated and processing reports** link in Figure 4.9, and proceed as indicated in Section 4.1 of this document.

5

The Operational KPI Reports

As stated earlier, the report options offered by the **operational KPI Reports** tree provide the operations personnel with basic, measure-level insight into the health of the network, system, and application tiers of the target infrastructure. Accordingly, these reports are classified as: Network, System, Application, Site, and Event Analysis.

Of the above reports, the Network, System, Application, and Website reports are further classified as Default, Specific, and User (see Chapter 3).

5.1 Network Performance Reports

To view a **NETWORK PERFORMANCE** report using this page, do the following:

1. Select the **Network Performance** option from the **Operational KPI reports** node of the **REPORTS BY FUNCTION** tree. Figure 5.1 then appears.

Figure 5.1: Providing the report specifications

2. Administrators of large IT infrastructures, which are characterized by hundreds of components, may find it difficult to pick and choose the components for which a report is to be generated; this is because, in such environments, the **Components** list in this page will be populated with a large number of components, which would naturally make component selection tough. To enable administrators of such environments to quickly locate the components of interest to them and swiftly generate the reports, eG Enterprise provides a **Report for** list that consists of a variety of filter options. By default, the **Component** option is chosen from this list (see Figure 5.1) - this indicates that all the managed components of a chosen type will be available for selection in the **Components** list by default. In addition to this, the **Report for** list provides the following filter options as well:

   - **Service**: If the component for which reports are to be generated is involved in the delivery of a particular service, then pick this option from the **Report for** list. Doing so will invoke a **Service** list from which a service name is to be chosen (see Figure 5.2). Upon selection of a service, the component types that are part of the service will populate the **Component Type** list in this page. Once you pick a component type, all components of that type, which are engaged in the delivery of the chosen service, will be displayed as candidates for selection in the **Components** list. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the

component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

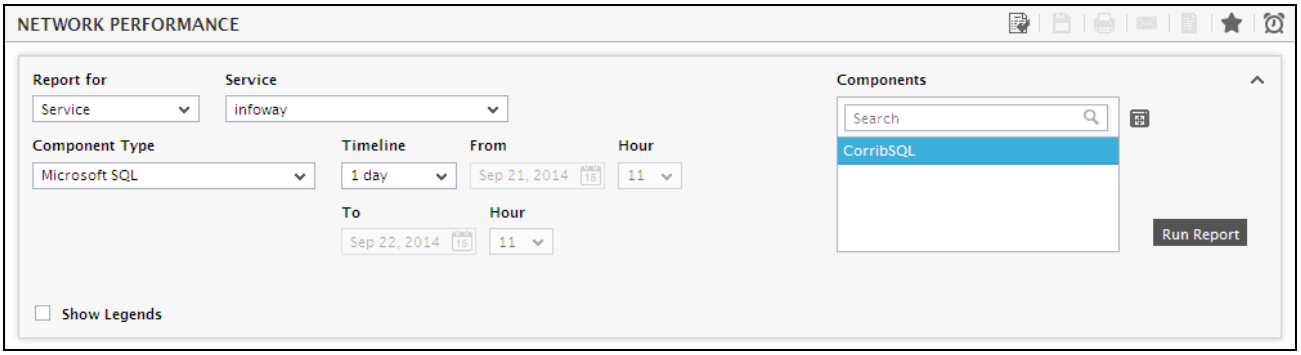


Figure 5.2: Selecting the Service option from the Report for list

- **Segment**: If the components for which a report is to be generated is part of a segment, pick the **Segment** option from the **Report for** list. Then, select the segment of interest to you from the **Segment** list (see Figure 5.3). This will populate the **Component Type** list with the types of components that are part of the chosen segment. If you select a component type from the **Component Type** list, then, all components of that type, which are part of the chosen segment, will be displayed in the **Components** list for selection. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

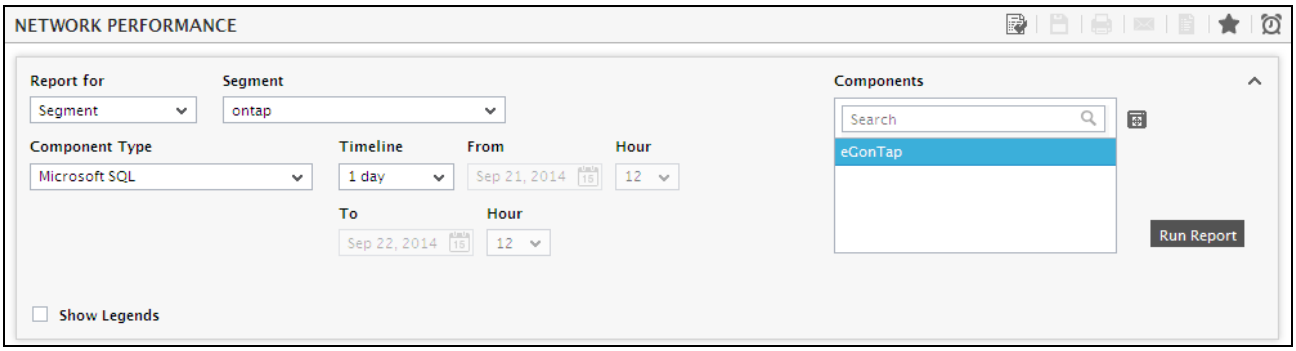


Figure 5.3: Selecting the Segment option from the Report for list

- **Zone**: If the components for which a report is to be generated is part of a zone, pick the **Zone** option from the **Report for** list (see Figure 5.4). To include sub-zones also in your search for components, set the **Include SubZones** flag to **Yes**. Then, select the zone of interest to you from the **Zone** list. This will populate the **Component type** list with the types of components that are part of the chosen zone. If you select a component type from the **Component type** list, then, all components of that type, which are part of the chosen zone, will be displayed in the **Components** list for selection. If there are too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

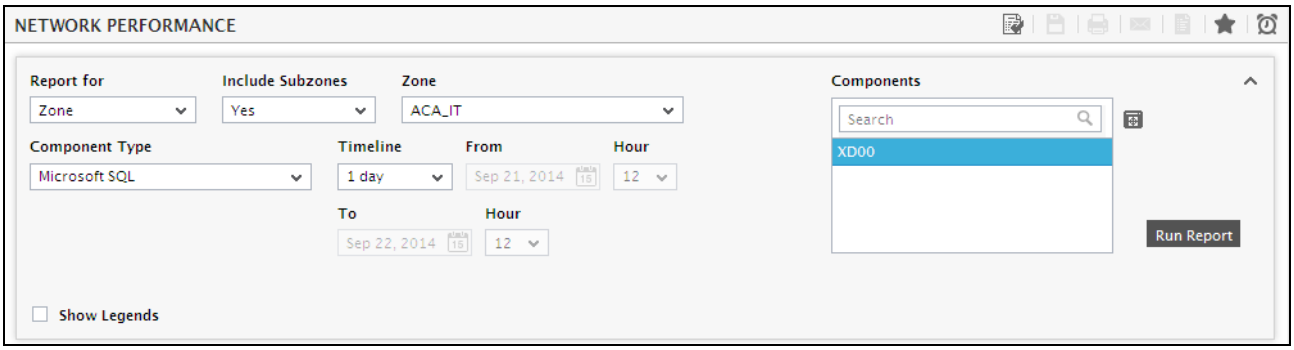


Figure 5.4: Selecting the Zone option from the Report for list

3. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones to be included in the report.

4. Then, select the period (**Timeline**) for which the graph is to be generated (see Figure 5.1). You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

Note

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

5. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more **Components** for report generation. However, if you want to view and then alter these settings (if required), click on the button. The **MORE OPTIONS** (see Figure 5.5) drop down window will then appear. The steps below discuss each of these settings and how they can be customized.

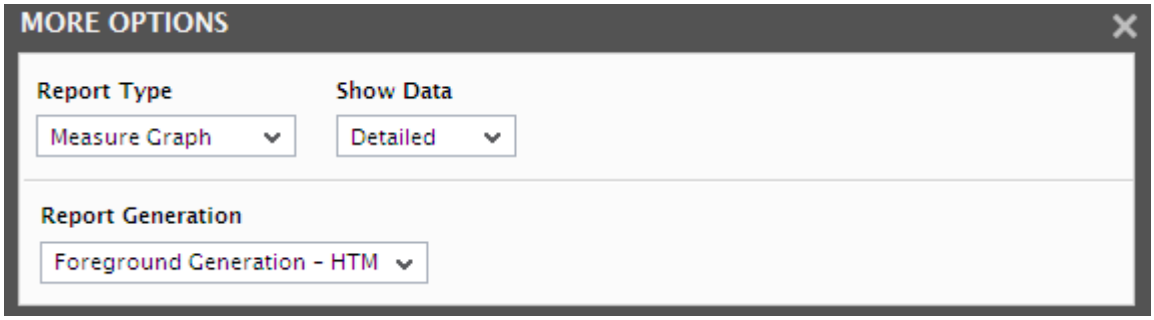


Figure 5.5: The MORE OPTIONS drop down window for generating a Network Performance report

6. From Figure 5.5, select the type of report to be generated from the **Report Type** list box. The options available are:

   - **Measure**: Select this option if measurement values for different metrics have to be plotted with time of day.
   - **Summary**: Select this option to plot the service level achievements of different metrics during a designated period. When this option is chosen, a **Duration** list will appear with the following options:
     - **Hourly Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on an hourly basis.
     - **Daily Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on a daily basis.
     - **Monthly Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on a monthly basis.
   - **Trend**: Selecting this option will enable you to plot the trend values of different metrics computed over a period of time. Past trends in performance can be analyzed and accordingly, the future operational capacity of the targets can be planned using this report. If you select **Trend** as the **Report type**, a **Graph Type** list will appear. The **Graph Type** options are as follows:
     - **Min/Max** : Select this option to generate a report that plots the minimum and maximum values registered by different metrics during a specified timeline.
     - **Avg**: Select this option to generate a report that plots the average values computed for various metrics during a specified timeline.
     - **Sum**: Select this option to generate a report that plots the sum of the values of a measure during a specified timeline.

7. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information base comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend**

information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. By default, the **Detailed** option is selected against the **Show Data** field in Figure 5.5 indicating that the report data is retrieved from the detailed test information in the database by default. To enable the usage of trend data for report generation, select the **Trend** option against **Show Data**. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the icon against the **Admin** tab is clicked.
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

8. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

9. Finally, click on the **Run Report** button to generate the graph. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 5.6.

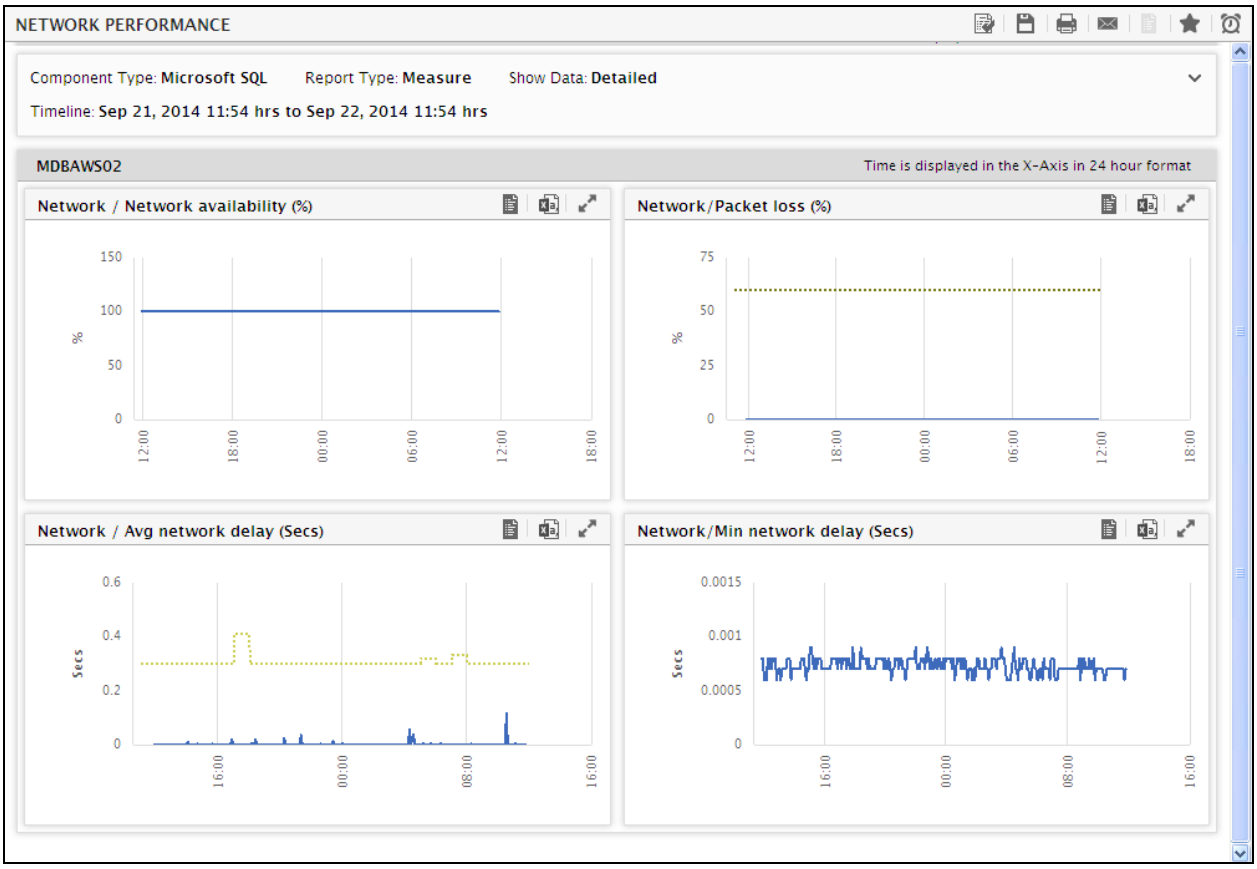

NETWORK PERFORMANCE
Component Type: Microsoft SQL
Report Type: Measure
Show Data: Detailed
Timeline: Sep 21, 2014 11:54 hrs to Sep 22, 2014 11:54 hrs
MDBAWS02
Time is displayed in the X-Axis in 24 hour format
Network / Network availability (%)
Network/Packet loss (%)
Network / Avg network delay (Secs)
Network/Min network delay (Secs)
%
Secs

Figure 5.6: Generating a Detailed Network Performance Measure Report

10. To enable trend table usage, select **Trend** from **Show Data**, provide a report **Timeline**, and click the **Run Report** button. In this case, Figure 5.7 will appear.

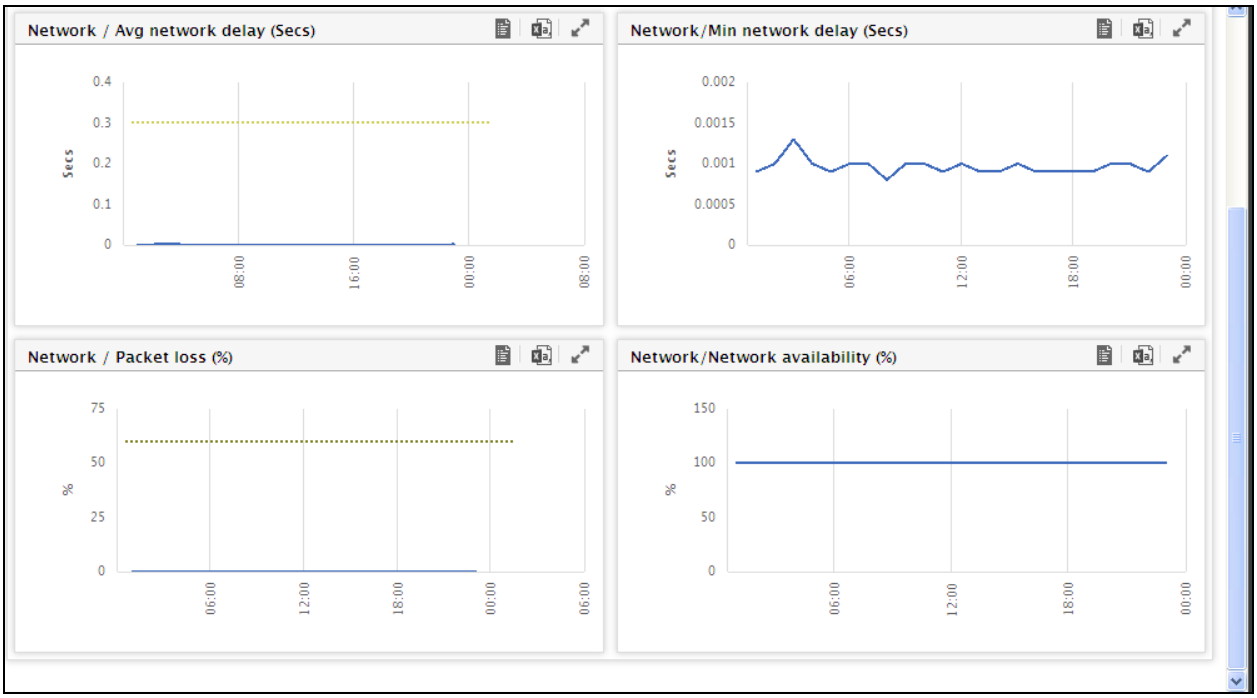


Figure 5.7: Generating a Network Measure Report using Trend data

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by requests for voluminous data, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini** file.

    For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.

  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **Run Report button** to generate the report, the following message box appears informing you that only the **Trend** option is permitted.

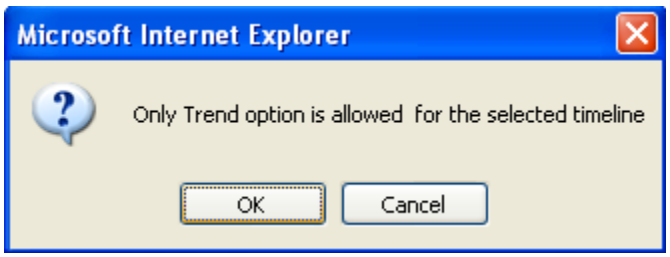


Figure 5.8: A message stating that only the Trend option is supported for the given Timeline

  - To proceed with the **Trend** report generation, click the **OK** button in Figure 5.8 To terminate **Trend** report generation, click the **Cancel** button.

11. Figure 5.6 and Figure 5.7 reveal the measure reports for the Network availability, Packet loss, Avg network delay and Min network delay measures associated with Network Test. While the **Network-Measure** report configuration specific to the host 192.168.10.8 includes all the above-mentioned measures, the default configuration includes the Avg network delay and Min network delay measures only. If specific report configurations exist for a chosen component, then they will override the default configurations. Therefore, Figure 5.6 displays only the reports specific to component 192.168.10.8.

12. Similarly, if no user/site/application/host-specific reports have been configured, then the default configurations will apply automatically. Since no **Network-Summary** reports have been configured specifically for the host 192.168.10.8, the default configuration will come into play. Accordingly, Figure 5.9, Figure 5.10 and Figure 5.11, display the default network summary graphs for the measures Avg network delay, Min network delay, Availability, and Packet loss. For more details on configuring specific **Network-Measure** and **Network-Summary** reports, refer to Section 3.2.

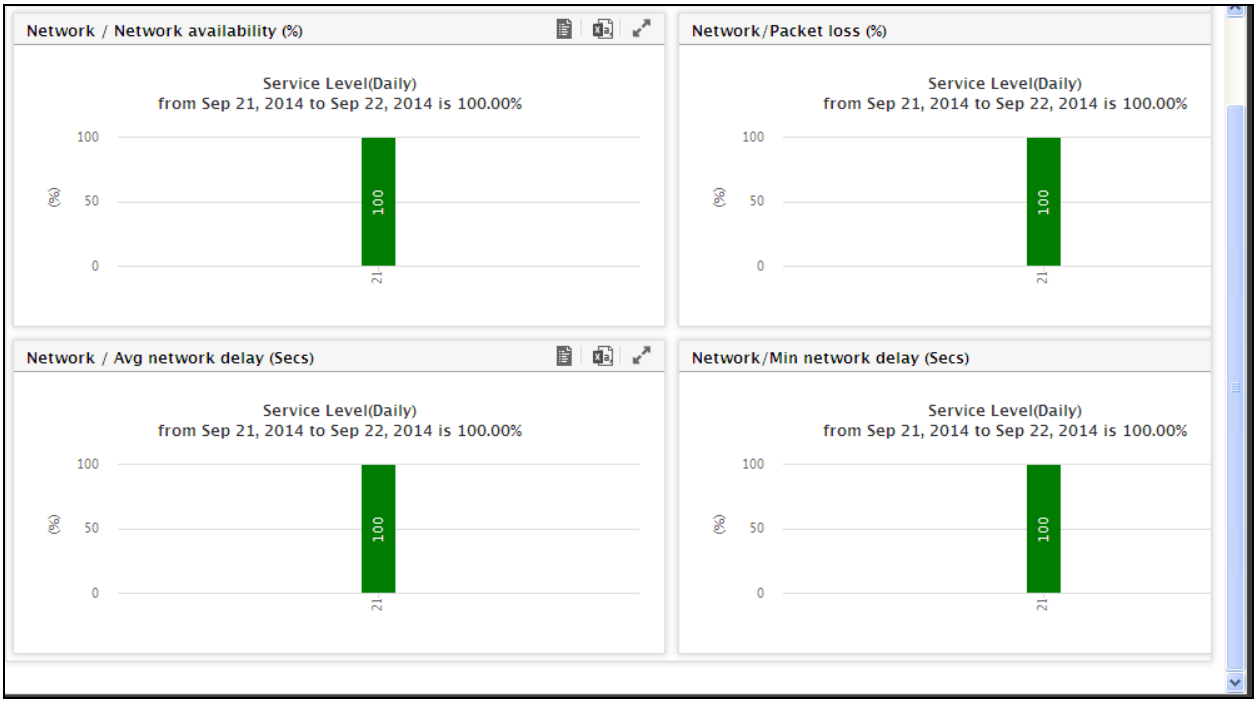


Figure 5.9: A sample Daily Summary report

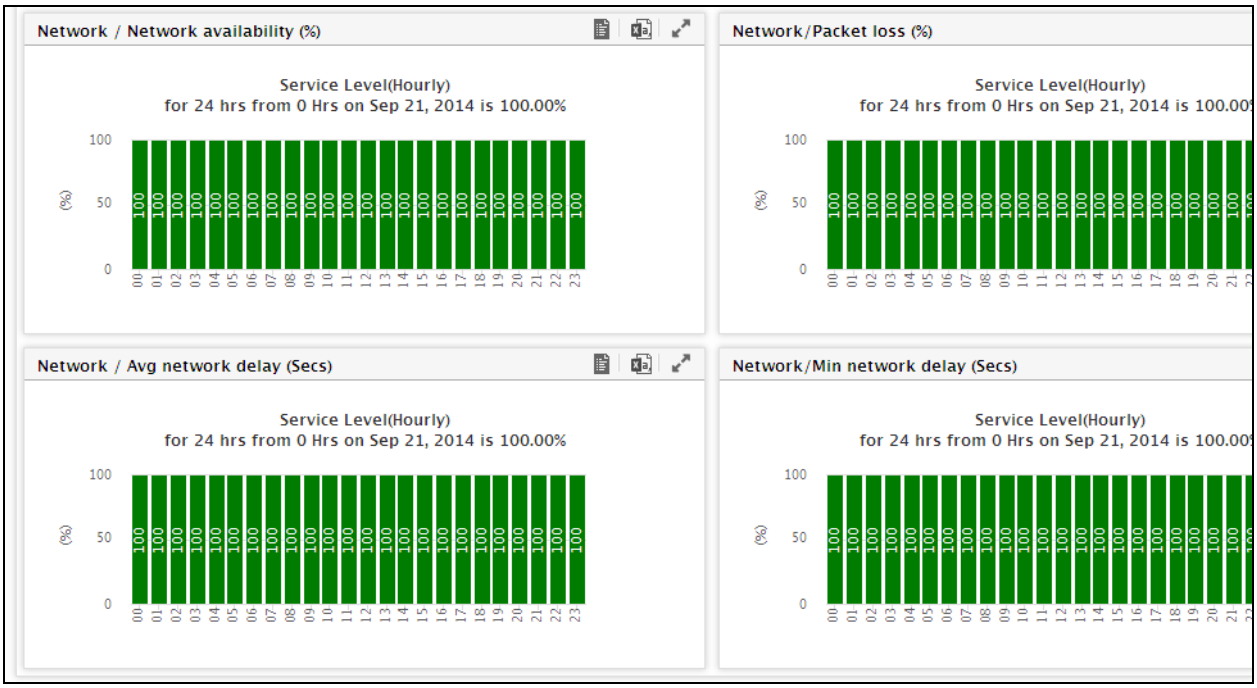

Network / Network availability (%)
Service Level(Hourly)
for 24 hrs from 0 Hrs on Sep 21, 2014 is 100.00%
Network/Packet loss (%)
Service Level(Hourly)
for 24 hrs from 0 Hrs on Sep 21, 2014 is 100.00%
Network / Avg network delay (Secs)
Service Level(Hourly)
for 24 hrs from 0 Hrs on Sep 21, 2014 is 100.00%
Network/Min network delay (Secs)
Service Level(Hourly)
for 24 hrs from 0 Hrs on Sep 21, 2014 is 100.00%

Figure 5.10: A sample Hourly Summary report

Note

The **Hourly Summary** graph plots measurement data pertaining to a maximum duration of 24 hours. Therefore, even if the **Timeline** specified exceeds 1 day, the graph will report data for 24 hours only.

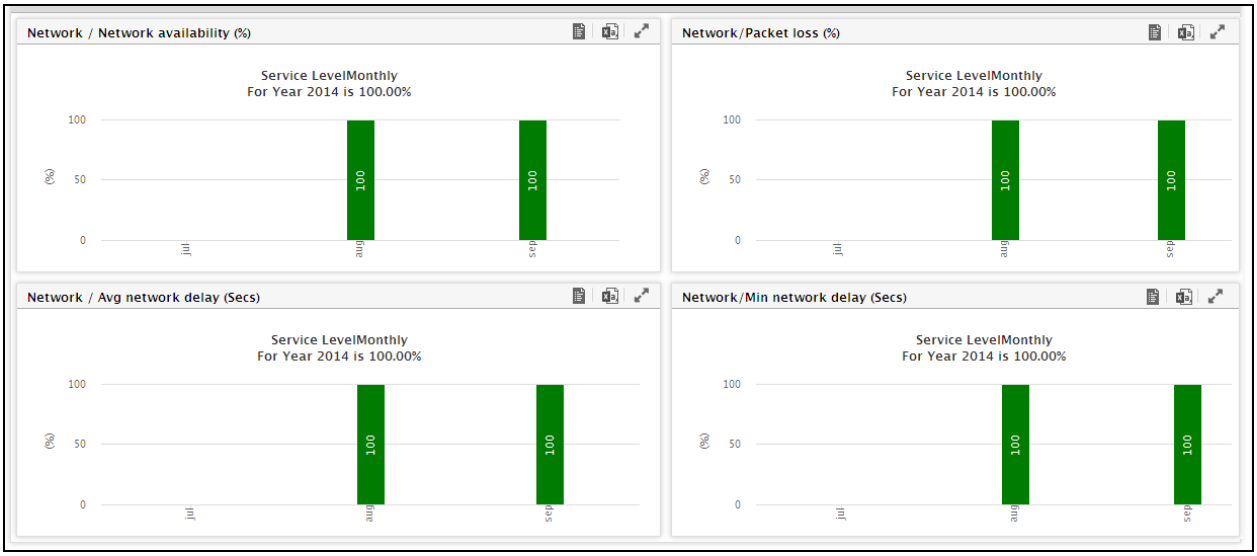


Figure 5.11: A sample Monthly Summary report

Note

Since summary graphs can be generated using the **Trend** information base only, the **Show Data** field disappears if the **Report Type** is set to any of the following: **Daily Summary**, **Hourly Summary**, or **Monthly Summary**.

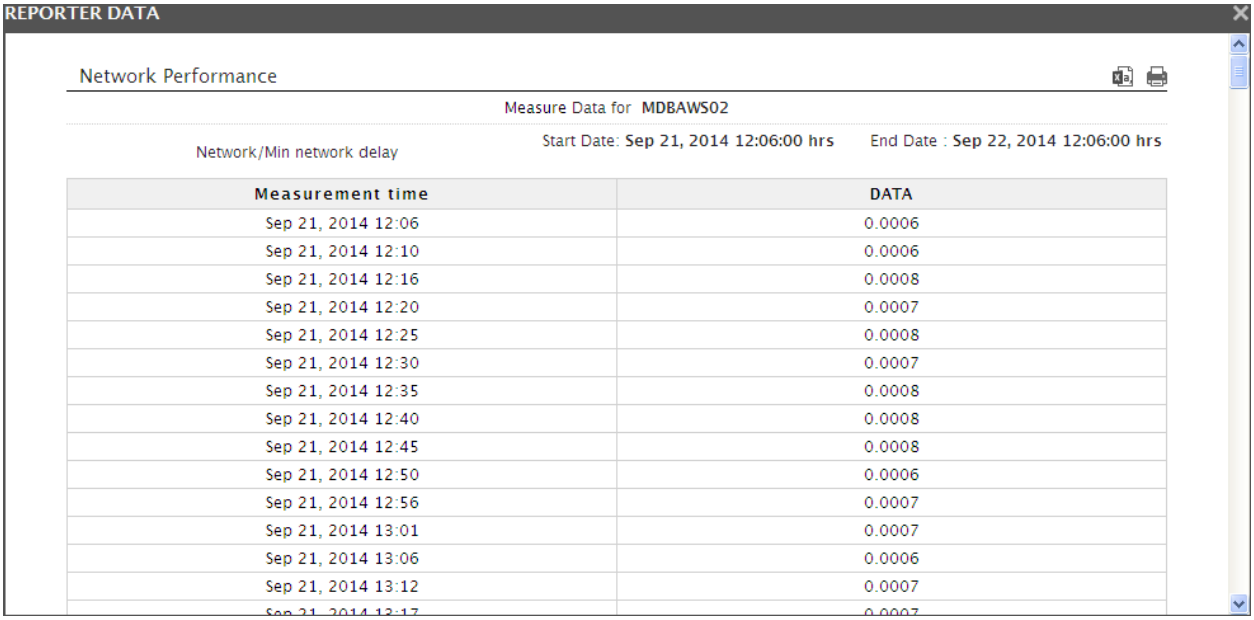


Figure 5.12: The list of values that have been plotted on a particular graph

13. Now, to enlarge the graphs displayed in the **NETWORK REPORT** page (see Figure 5.6), click on them. Upon clicking, another window will appear wherein the enlarged graph will be displayed (see Figure 5.13).

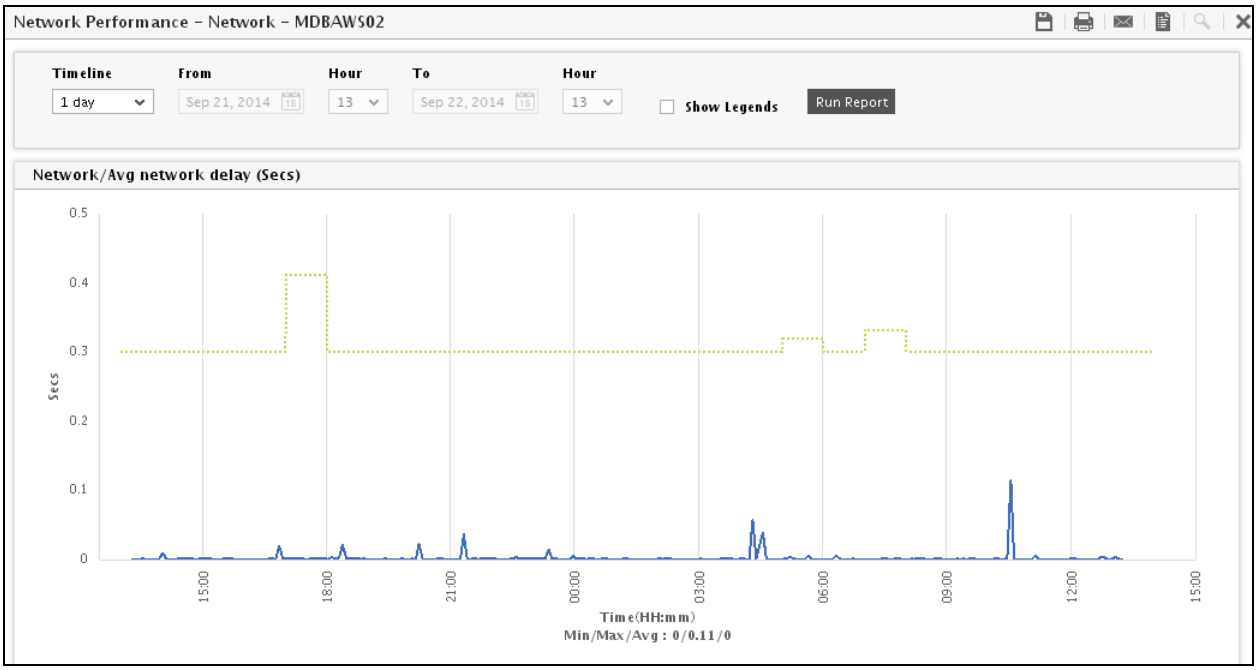


Figure 5.13: An enlarged graph

14. When the enlarged report has a measure for which the detailed diagnosis capability has been enabled, then a **DIAGNOSIS** button will also appear. Click on the **DIAGNOSIS** button to view the detailed diagnosis of that measure for the chosen **Timeline** (see Figure 5.14).

DETAILED DIAGNOSIS

Component: hyperv_agentless_thru_58agent Test: Network

Measurement: Avg network delay

Timeline: Any From: Mar 29, 2010 Hr 19 Min 1 To: Apr 01, 2010 Hr 19 Min 1 Submit

Lists the hop-by-hop connectivity and delay

Time	HopCount	Router	HopDelays(ms)
Apr 01, 2010 19:00:50	1	192.168.10.67	18;<1;<1
Apr 01, 2010 18:50:49	1	192.168.10.67	20;<1;<1
Apr 01, 2010 18:40:29	1	192.168.10.67	*;16;<1
Apr 01, 2010 18:30:28	1	192.168.10.67	20;<1;1
Apr 01, 2010 18:20:15	1	192.168.10.67	20;<1;<1
Apr 01, 2010 18:10:23	1	192.168.10.67	19;1;<1
Apr 01, 2010 18:00:29	1	192.168.10.67	20;1;1
Apr 01, 2010 17:50:32	1	192.168.10.67	20;<1;<1
Apr 01, 2010 17:40:29	1	192.168.10.67	*;16;<1
Apr 01, 2010 17:30:16	1	192.168.10.67	19;<1;<1
Apr 01, 2010 17:19:24	1	192.168.10.67	19;<1;<1
Apr 01, 2010 17:09:32	1	192.168.10.67	18;<1;<1
Apr 01, 2010 16:59:50	1	192.168.10.67	18;<1;<1
Apr 01, 2010 16:49:06	1	192.168.10.67	19;1;<1
Apr 01, 2010 16:38:45	1	192.168.10.67	19;<1;<1
Apr 01, 2010 16:29:02	1	192.168.10.67	18;<1;<1
Apr 01, 2010 16:18:51	1	192.168.10.67	*;21;<1
Apr 01, 2010 16:08:06	1	192.168.10.67	20;<1;<1
Apr 01, 2010 15:58:09	1	192.168.10.67	20;<1;<1
Apr 01, 2010 15:48:41	1	192.168.10.67	19;<1;<1
Apr 01, 2010 15:38:32	1	192.168.10.67	18;<1;<1

Figure 5.14: The detailed diagnosis of the measure associated with the enlarged graph

15. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the **PDF** icon in that page.

5.2 System Performance Reports

eG Enterprise offers two **System Reports** - a **System Performance** report and a **Top System Resource Consumers** report. This section discusses both these reports.

System Performance Report

To receive an overview of system health, use the **System Performance** report. To generate this report, select the **System Performance** option from the **Operational KPI Reports** node of the **REPORTS BY FUNCTION** tree.

Figure 5.15: Providing the System Performance report specification

In the context sensitive page that appears next, specify the following information (see Figure 5.15):

1. Administrators of large IT infrastructures, which are characterized by hundreds of components, may find it difficult to pick and choose the components for which a report is to be generated; this is because, in such environments, the **Components** list in this page will be populated with a large number of components, which would naturally make component selection tough. To enable administrators of such environments to quickly locate the components of interest to them and swiftly generate the reports, eG Enterprise provides a **Report for** list that consists of a variety of filter options. By default, the **Component** option is chosen from this list (see Figure 5.15) - this indicates that all the managed components of a chosen type will be available for selection in the **Components** list by default. In addition to this, the **Report for** list provides the following filter options asll:
    - **Service**: If the component for which reports are to be generated is involved in the delivery of a particular service, then pick this option from the **Report for** list. Doing so will invoke a **Service** list from which a service name is to be chosen. Upon selection of a service, the component types that are part of the service will populate the **Component Type** list in this page. Once you pick a component type, all components of that type, which are engaged in the delivery of the chosen service, will be displayed as candidates for selection in the **Components** list. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.
    - **Segment**: If the components for which a report is to be generated is part of a segment, pick the **Segment** option from the **Report for** list. Then, select the segment of interest to you from the **Segment** list. This will

populate the **Component Type** list with the types of components that are part of the chosen segment. If you select a component type from the **Component Type** list, then, all components of that type, which are part of the chosen segment, will be displayed in the **Components** list for selection. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

- **Zone**: If the components for which a report is to be generated is part of a zone, pick the **Zone** option from the **Report for** list. To include sub-zones also in your search for components, set the **Include Subzones** flag to **Yes**. Then, select the zone of interest to you from the **Zone** list. This will populate the **Component Type** list with the types of components that are part of the chosen zone. If you select a component type from the **Component Type** list, then, all components of that type, which are part of the chosen zone, will be displayed in the **Components** list for selection. If there are too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

2. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
3. Then, select the period (**Timeline**) for which the graph is to be generated (see Figure 5.17). You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the From and To dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

4. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a component from the **Compoennts** list. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (See Figure 5.16). The steps below discuss

each of these settings and how they can be customized.

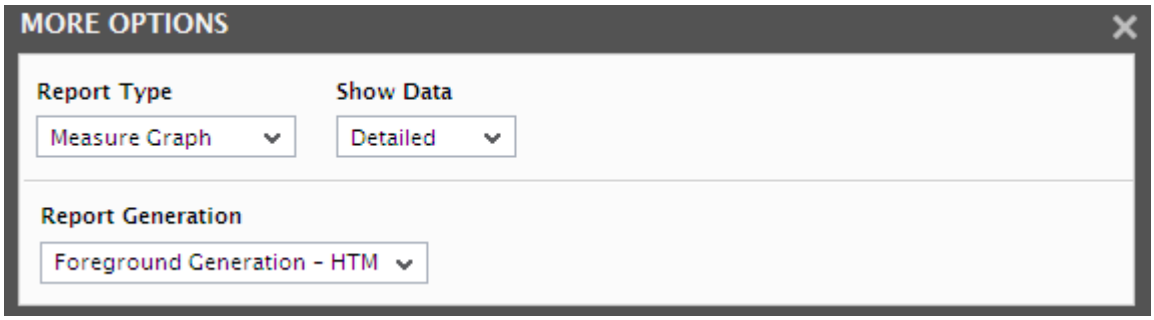


Figure 5.16: The default settings for generating the System Performance report

5. From Figure 5.16, select the type of report to be generated from the **Report Type** list box. The options are as follows:

   - **Measure**: Select this option if measurement values for different metrics have to be plotted with time of day.
   - **Summary**: Select this option to plot the service level achievements of different metrics during a designated period. When this option is chosen, a **Duration** list will appear with the following options:
     - **Hourly Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on an hourly basis.
     - **Daily Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on a daily basis.
     - **Monthly Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on a monthly basis.
   - **Trend**: Selecting this option will enable you to plot the trend values of different metrics computed over a period of time. Past trends in performance can be analyzed and accordingly, the future operational capacity of the targets can be planned using this report. If you select **Trend** as the **Report type**, a **Graph Type** list will appear. The **Graph Type** options are as follows:
     - **Min/Max** : Select this option to generate a report that plots the minimum and maximum values registered by different metrics during a specified timeline.
     - **Avg**: Select this option to generate a report that plots the average values computed for various metrics during a specified timeline.
     - **Sum**: Select this option to generate a report that plots the sum of the values of a measure during a specified timeline.

6. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for

a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 5.16. By default, the **Detailed** option is selected here in Figure 5.16 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the icon against the **Admin** tab is clicked
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by requests for voluminous data, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini** file.

  For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **Run Report button** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in Figure 5.8. To terminate **Trend** report generation, click the **Cancel** button.

7. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

8. Finally, click on the **Run Report** button to generate the graph. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 5.17.

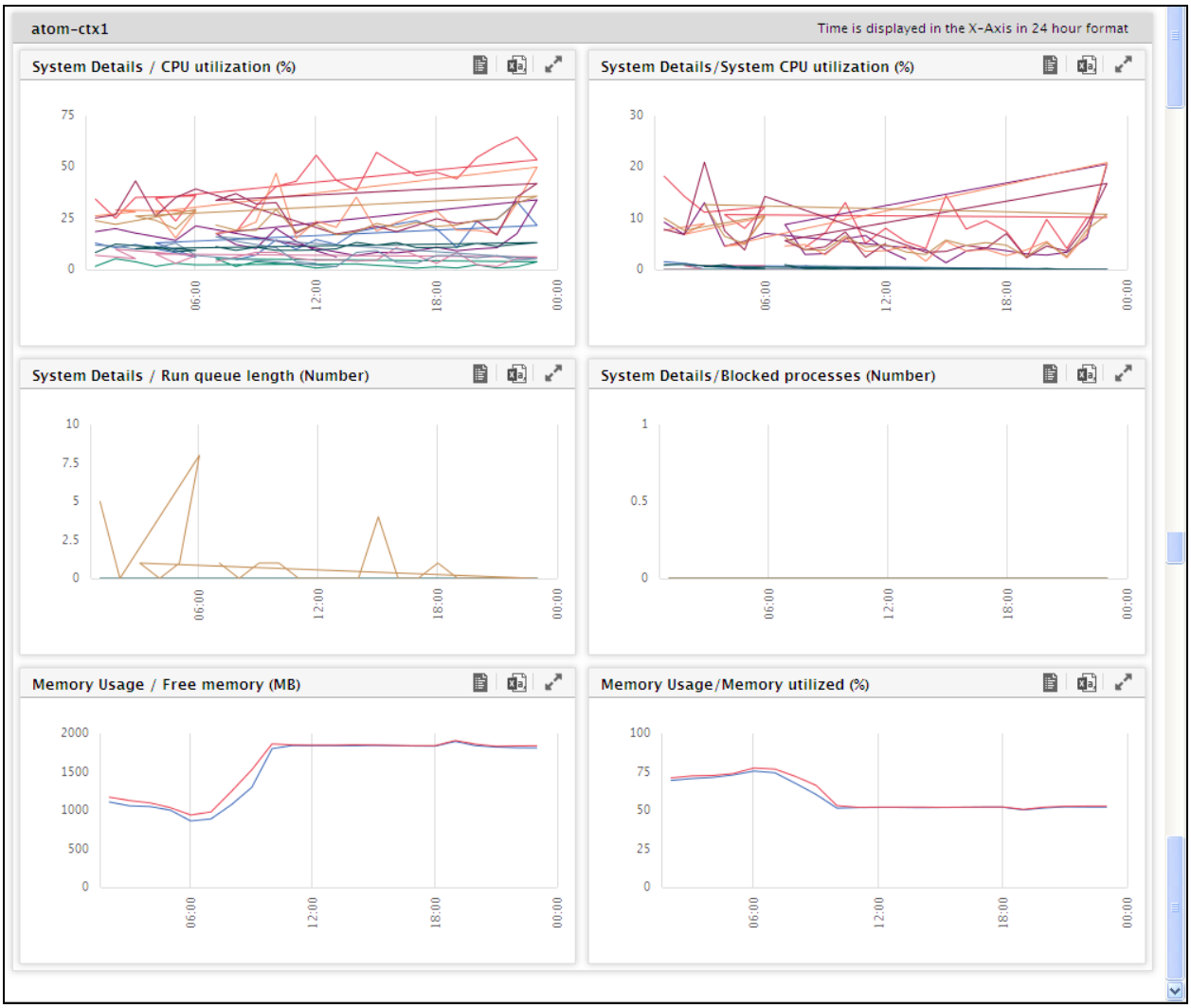


Figure 5.17: Generating System Overview Reports

9. Figure 5.17 reveals that the configuration specific to the host 192.168.10.8 has gained precedence over the default **System-Measure** report configurations. Therefore, the measures associated with the specific configurations, which includes, CPU utilization, System CPU utilization, Run queue length, and Blocked processes, have been plotted in a graph. For more details on configuring specific **System-Measure** reports, refer to Section 3.2.

10. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the **PDF** icon in that page.

TOP SYSTEM RESOURCE CONSUMERS Report

While the **System Performance** report reveals irregularities in system resource usage, the **Top System Resouce Consumers** report turns the spotlight on the root-cause of these usage excesses. For instance, using the **System Performance** report you can proactively detect a potential contention for the CPU resources of a system. Using the **System Details** report thereafter, you can identify which process on that system is consuming the CPU resources excessively, and is thus causing the resource contention.

To generate the **Top System Resource Consumers** report, select the **Top System Resource Consumers** option from the **Operational KPI Reports** node of the **REPORTS BY FUNCTIONS** tree. In the page that appears next, specify the following information (see Figure 5.18):

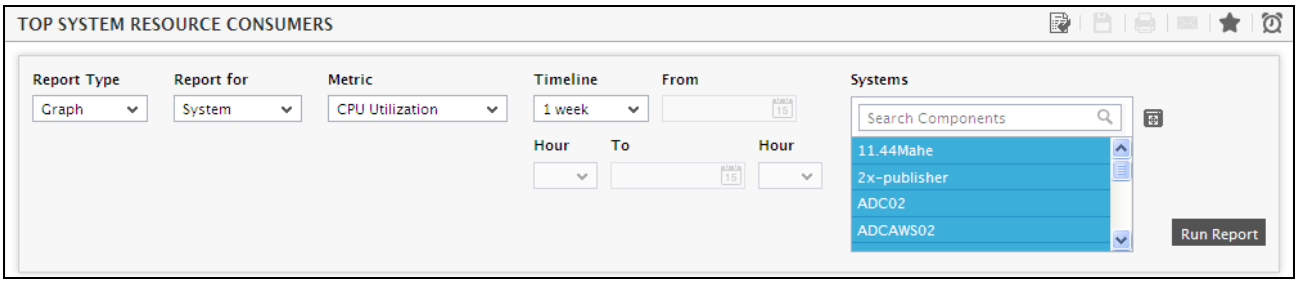


Figure 5.18: Generating the Top System Resource Consumers report

1. Administrators of large IT infrastructures, which are characterized by hundreds of systems, may find it difficult to pick and choose the systems for which a report is to be generated; this is because, in such environments, the **Systems** list in this page will be populated with a large number of systems, which would naturally make system selection tough. To enable administrators of such environments to quickly locate the systems of interest to them and swiftly generate the reports, eG Enterprise provides a **Report for** list that consists of a variety of filter options. By default, the **System** option is chosen from this list (see Figure 5.17) - this indicates that all the managed systems will be available for selection in the **Systems** list by default. In addition to this, the **Report for** list provides the following filter options as well:
   - **Service**: If the system for which reports are to be generated is involved in the delivery of a particular service, then pick this option from the **Report for** list. Doing so will invoke a **Service** list from which a service name is to be chosen. Once you pick a service, all systems which are engaged in the delivery of the chosen service, will be displayed as candidates for selection in the **System** list. Select the systems of your choice from this list.
   - **Segment**: If the systems for which a report is to be generated are part of a segment, pick the **Segment** option from the **Report for** list. Then, select the segment of interest to you from the **Segment** list. Then, all systems, which are part of the chosen segment, will be displayed in the **System** list for selection. Select the systems of your choice from this list.
   - **Zone**: If the systems for which a report is to be generated is part of a zone, pick the **Zone** option from the **Report for** list. To include sub-zones also in your search for components, set the **Include SubZones** flag to **Yes**. Then, select the zone of interest to you from the **Zone** list. This will populate the **System** list with the systems that are part of the chosen zone. Select the systems of your choice from this list.
2. If the **Systems** list consists of too many hosts, then viewing all the hosts and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Systems** list. This will expand the list so that you can view almost all the systems in a single interface and select the ones for which the report is to be generated.
3. Then, select the period (**Timeline**) for which the graph is to be generated (see Figure 5.20). You can either

provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the From and To dates should never be over 3 days. If it is, then, upon clicking the Run Report button a message box will appear, prompting the user to change the From and To specification.

4. The **Metric** option displays a pre-configured list of metrics for which the report can be generated. You can simply select a performance parameter from the list, for which you wish to view a detailed report across the systems. For example, just select the CPU Utilization metric from the Metrics list, and select all the systems for which you wish to view the detailed report from the System list. By default, the **Metric** list comes with a set of pre-configured parameters. You can expand the **Metric** list by adding more performance parameters to it. To override the default **Metric** list, edit the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory), and add a new metric to the **[REPORT_TEMPLATES]** section therein, in the following format:

   <DisplayName>=<InternalTestName>:<InternalMeasureName>

   To determine the *internal test and measure names*, refer to Page 212 of this document.

5. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick an option from the **Metric** list. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 5.19). The steps below discuss each of these settings and how they can be customized.

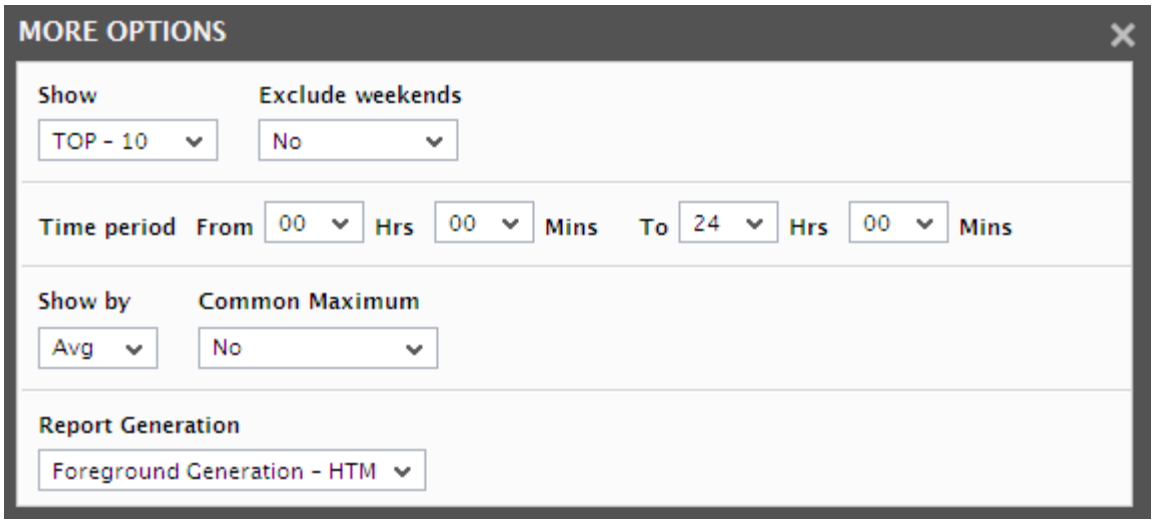


Figure 5.19: The default settings for the Top System Resource Consumers report

6. From Figure 5.19, select the type of report to be generated from the **Report Type** list box. The options are as follows:

   - **Graph**: Select this option for a graphical representation of this report.
   - **Data**: To view this report in a table, select this option.

   If you select the **Report Type** option as **Graph**, then the **Show by** option appears. Select any one of the following options:

   - **Max** : Select this option to generate a report that plots the maximum value registered by different metrics during a specified timeline.
   - **Avg**: Select this option to generate a report that plots the average values computed for the chosen metric across all the chosen systems during a specified timeline.

7. Likewise if you select the **Report type** as **Data**, then the **Sort by** option appears instead of the **Show by** option. Here too, select any one of the following options from the list:

   - **Max** : Select this option to sort the processes of each chosen system by range of the maximum value registered for the chosen metric during a specified timeline.
   - **Avg**: Select this option to generate a report in a tabular format that plots the average values computed for the processes of each chosen metric for all the chosen systems during a specified timeline.

8. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

Note

You can configure the days of the week that need to be considered as a 'weekend' using the **Days** parameter in the **[EXCLUDE_WEEKEND]** section in the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory). The **Days** parameter is set to *Saturday,Sunday* by default. To change this weekend specification, enter two other days of the week against the **Days** parameter.

9. By default, the report provides the details of only the **Top-10** processes for all the chosen systems that consume high resources. You can choose a different top-n / last-n option from the **Show** list, if need be.

By default, the values displayed in the **Show** list range from **TOP-10** to **LAST-10**. This is because, the **Showtop** parameter in the **[INFOS]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory) is set to 10, by default. You can, if required, configure the **Show** list to display a different range of options. For this, specify a different number against the **Showtop** parameter, and save the **eg_report.ini** file.

10. Next, specify the start time and end time for report generation against the **Time period** field.
11. By default, the **Common Maximum** flag is set to **No**. This indicates that by default, eG Enterprise does not set a common maximum value for all graphs in a report - in other words, the maximum value differs from graph to graph. This is because, the eG Enterprise system, by default, determines the maximum value for a graph by comparing all the values reported by the corresponding measure during the specified **Timeline**. If you want to set a common maximum value across all graphs in a view, set the **Common Maximum** flag to **Yes**. Once you set the **Common Maximum** value to **Yes**, the **Auto Maximum** and **Max Value** fields will appear. By default, the **Auto Set Maximum Value** flag is set to **Yes**. If this flag is set to **No**, you can set a *custom* maximum value for all the graphs in the **Max Value** field. If you set the **Auto Set Maximum Value** flag to **Yes**, then the maximum value will be auto-generated by the eG Enterprise system.
12. Next, indicate the type of graphs to be generated in the report page - whether 3D or 2D - by choosing the appropriate option from the **Graph** list. The default selection in this list is determined by the **Show reporter graphs in 3D** flag in the **MONITOR SETTINGS** page of the eG administrative interface. If this flag is set to **Yes**, then the **3D** option will be selected by default in the **Graph** list. If this flag is set to **No**, then the default selection in the **Graph** list will be **2D**.
13. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

14. Finally, click on the **Run Report** button to generate the report. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 5.20.

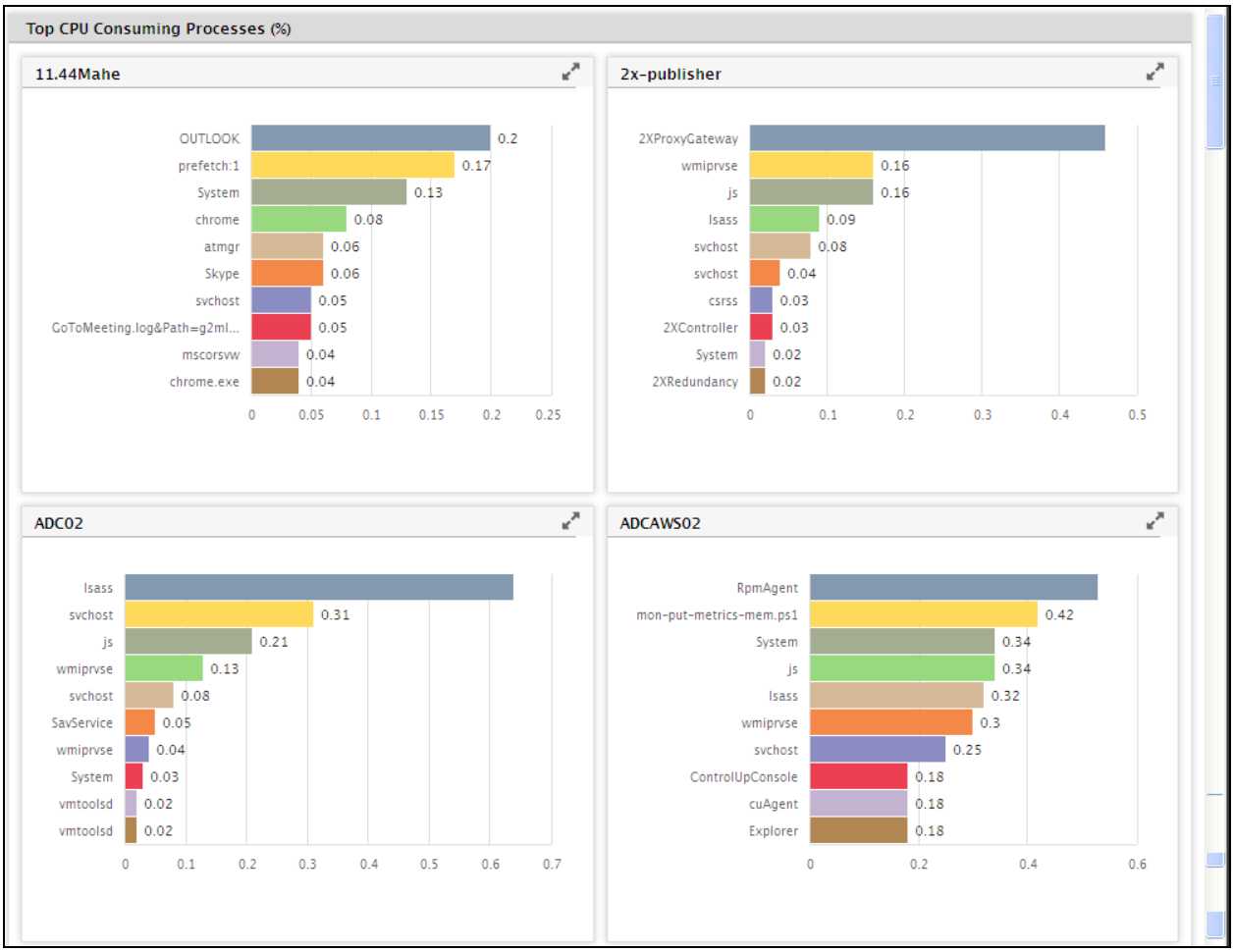


Figure 5.20: The Top System ReSource Consumers report

5.3 Application Reports

To generate application-specific reports, first, click on the **Application Performance** option from the **Operational KPI Reports** node of the **REPORTS BY FUNCTION** tree. Figure 5.21 will then appear.

Figure 5.21: Generating the Application Performance report

In order to generate the Application Performance report, provide the following information:

1. Administrators of large IT infrastructures, which are characterized by hundreds of components, may find it difficult to pick and choose the components for which a report is to be generated; this is because, in such

environments, the **Components** list in this page will be populated with a large number of components, which would naturally make component selection tough. To enable administrators of such environments to quickly locate the components of interest to them and swiftly generate the reports, eG Enterprise provides a **Report for** list that consists of a variety of filter options. By default, the **Component** option is chosen from this list (see Figure 5.21) - this indicates that all the managed components of a chosen type will be available for selection in the **Components** list by default. In addition to this, the **Report for** list provides the following filter options as well:

- **Service**: If the component for which reports are to be generated is involved in the delivery of a particular service, then pick this option from the **Report for** list. Doing so will invoke a **Service** list from which a service name is to be chosen. Upon selection of a service, the component types that are part of the service will populate the **Component Type** list in this page. Once you pick a component type, all components of that type, which are engaged in the delivery of the chosen service, will be displayed as candidates for selection in the **Components** list. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.
- **Segment**: If the components for which a report is to be generated is part of a segment, pick the **Segment** option from the **Report for** list. Then, select the segment of interest to you from the **Segment** list. This will populate the **Component Type** list with the types of components that are part of the chosen segment. If you select a component type from the **Component Type** list, then, all components of that type, which are part of the chosen segment, will be displayed in the **Components** list for selection. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon button next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.
- **Zone**: If the components for which a report is to be generated is part of a zone, pick the **Zone** option from the **Report for** list. To include sub-zones also in your search for components, set the **Include Subzones** flag to **Yes**. Then, select the zone of interest to you from the **Zone** list. This will populate the **Component Type** list with the types of components that are part of the chosen zone. If you select a component type from the **Component Type** list, then, all components of that type, which are part of the chosen zone, will be displayed in the **Components** list for selection. If there are too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

2. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
3. Then, select the period (**Timeline**) for which the graph is to be generated (see Figure 5.21). You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

4. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more components from the **Components** list. However, if you want to view and then alter these settings (if required), click on the icon. The **MORE OPTIONS** drop down window will then appear with the default settings (see Figure 5.22). The steps below discuss each of these settings and how they can be customized.

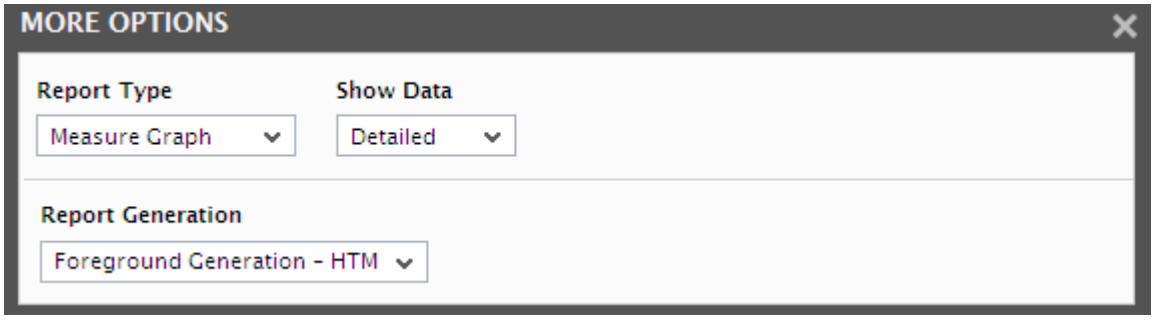


Figure 5.22: The default settings for generating the Application Performance report

5. From Figure 5.22, select the type of report to be generated from the **Report Type** list box. The options available are as follows:

   - **Measure**: Select this option if measurement values for different metrics have to be plotted with time of day.
   - **Summary**: Select this option to plot the service level achievements of different metrics during a designated period. When this option is chosen, a **Duration** list will appear with the following options:
     - **Hourly Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on an hourly basis.
     - **Daily Summary**: This option, when chosen, highlights the service levels of different

measurements (i.e. the % of time a measurement was in compliance with its threshold) on a daily basis.

- **Monthly Summary:** This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on a monthly basis.

➢ **Trend:** Selecting this option will enable you to plot the trend values of different metrics computed over a period of time. Past trends in performance can be analyzed and accordingly, the future operational capacity of the targets can be planned using this report. If you select **Trend** as the **Report type**, a **Graph Type** list will appear. The **Graph Type** options are as follows:

- **Min/Max** : Select this option to generate a report that plots the minimum and maximum values registered by different metrics during a specified timeline.
- **Avg**: Select this option to generate a report that plots the average values computed for various metrics during a specified timeline.
- **Sum**: Select this option to generate a report that plots the sum of the values of a measure during a specified timeline.

6. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 5.22. By default, the **Detailed** option is selected here in Figure 5.22 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

➢ Login to the eG administrative interface as 'admin'.

➢ Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.

➢ From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini** file.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **Run Report button** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box.

7. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

8. Finally, click on the **Run Report** button to generate the graph. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 5.23.

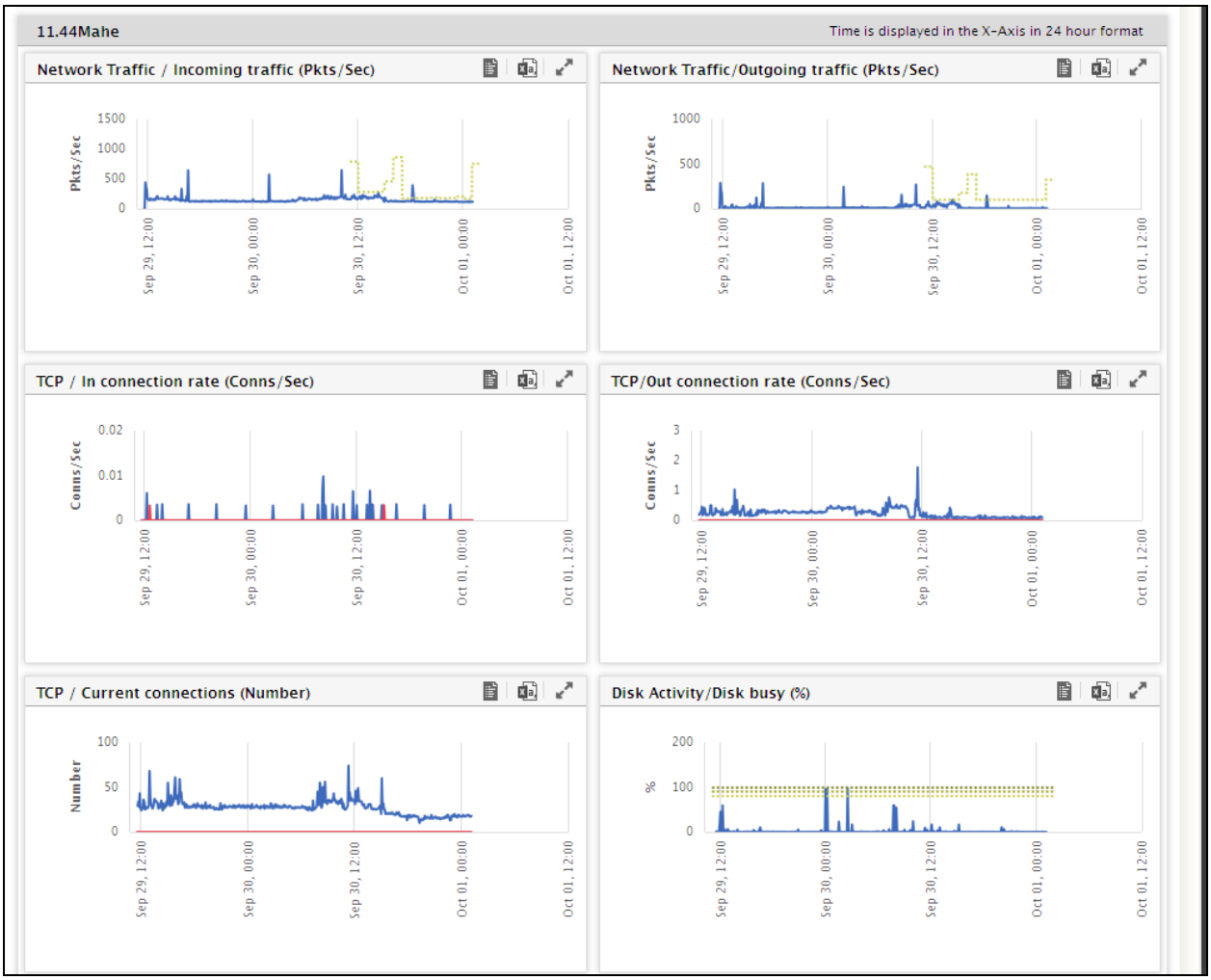


Figure 5.23: The Application Performance report

9. Figure 5.23 is a classic example for specific configurations overriding the default ones. Accordingly, **Application-Measure** reports specifically defined for the Oracle server 192.168.10.8:1521:egurkha have been generated and displayed. Also, note that the graphs for the OracleTablespaces test measures are descriptor-based. For more details on configuring specific **Application-Measure** reports, refer to Section 3.2.

10. In the case of measures that take descriptors, Figure 5.24 will be able to display a maximum of 10 descriptors in one graph, by default. To view the complete list of descriptors more clearly, click on the graph. Note that the OracleTablespaces test of Figure 5.24 takes descriptors. To view the descriptors more clearly, click on the OracleTablespaces test graph (see Figure 5.24).

The maximum number of descriptors that can be displayed in the **OPERATIONS REPORT** page is configurable. For that, set the **MaxInfos** parameter in the **[INFOS]** section of the **eg_report.ini** (in the **<EG_INSTALL_DIR>\manager\config** directory) to the required value. By default, this parameter will be set to **10**, indicating that a maximum of 10 descriptors can be plotted in a single graph in the **APPLICATION PERFORMANCE** page.

Figure 5.24: Enlarged OracleTablespaces test graph displaying the descriptors (the tablespaces)

11. If a report comprising of more than 5 descriptors is enlarged, then Figure 5.24 will provide you with options to restrict your view to specific descriptors only. In our example, let us view the graph pertaining to the top 5 tablespaces that have utilized the maximum space. To do so, first, select the **Descriptors** option from Figure 5.24. Then, select the **Top - 5** option from the adjoining list box. Figure 5.25 will then appear.

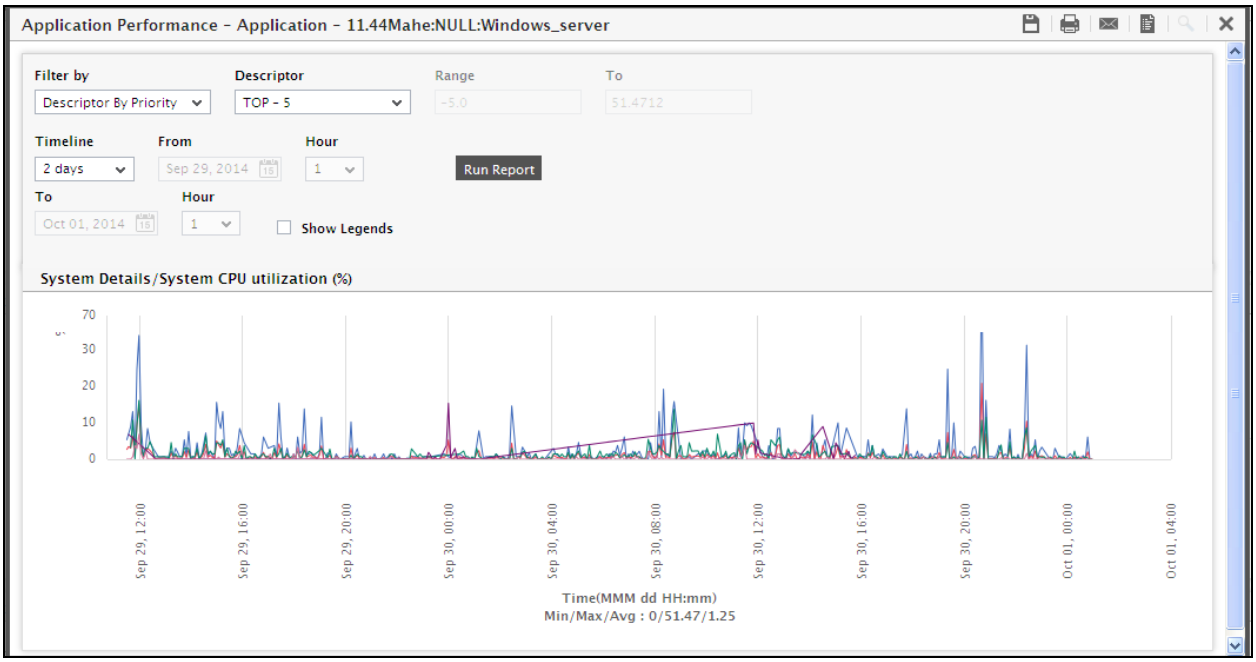


Figure 5.25: Graph of the top 5 space consuming tablespaces

12. Similarly, you can choose to view reports pertaining to the Top - 1 to the Top - 10 consumers of tablespace. Alternatively, you can select the **Range** option. If this is done, then, using the adjoining text boxes you can specify a minimum and maximum value. The eG Reporter will then generate a report for only those tablespaces which currently consume space within the specified limits (see Figure 5.25). For example, to know the tablespaces that consume space between the range of 20 to 27 %, specify '20' in the text box before **To**, and 27 in the text box that follows **To** (see Figure 5.25). Figure 5.26 will then appear.

The threshold setting of a measure determines the options that will be displayed in the **Descriptor** list box of Figure 5.24. If only a **Minimum Threshold** is set for a measure, then the **Descriptor** list box will display 'Last' options and not 'Top' options. For example, the **Free_memory** measure of the OracleTablespaces Test carries a **Minimum threshold** setting only. In such a case, using the **Descriptor** option of Figure 5.24, you will be able to view information on tablespaces with the least free space. In other words, the usual 'Top - 1' to 'Top - 10' options will be replaced by 'Last - 1' to 'Last - 10' options. Similarly, if a measure carries only a **Maximum Threshold** setting, or both **Minimum** and **Maximum** thresholds, then only the 'Top' options will be available in the **Descriptor** list box.

If a measure takes less than 10 descriptors, say only 5 descriptors, then the **Descriptor** list box in Figure 5.24 will offer only the Top - 1 to Top - 5 options (or Last - 1 to Last - 5 options, as the case may be). If the number of descriptors exceeds 10, then the **Descriptor** list box will provide an option range of Top - 1 to Top - 10 (or Last - 1 to Last - 10) only.

Figure 5.26: Viewing the report for tablespaces that consume space in the range of 20-27%

13. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the PDF icon in that page.

5.4 Site Reports

To generate site-specific reports, first, click on the **Website Performance** option from the **Operational KPI Reports** node of the **REPORTS BY FUNCTION** tree. In the page that appears next, provide the following information (see Figure 5.27):

1. From the **Site** drop-down list box, select the web sites for which a measurement graph is to be generated. This list box will list all the fully configured web sites in the environment (see Figure 5.27).

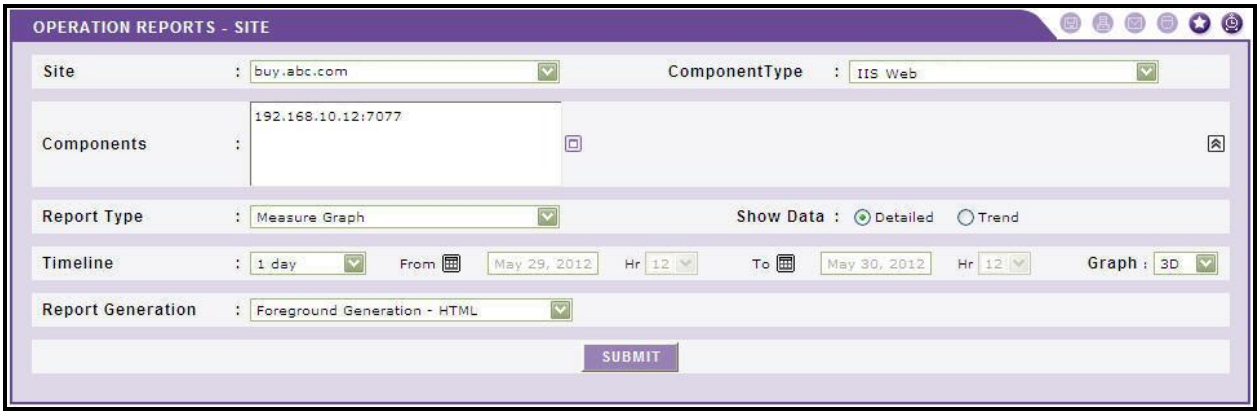

OPERATION REPORTS - SITE
Site : buy.abc.com
ComponentType : IIS Web
Components : 192.168.10.12:7077
Report Type : Measure Graph
Show Data : Detailed Trend
Timeline : 1 day From May 29, 2012 Hr 12 To May 30, 2012 Hr 12 Graph : 3D
Report Generation : Foreground Generation - HTML
SUBMIT

Figure 5.27: Generating a Site Operations report

2. Selecting a **Site** will result in the display of a **ComponentType** list box listing all component types associated with the selected web site. From this list box, select the type of component for which reports are required.

3. Once a component type is chosen, all components of the selected type that are associated with the chosen web site will then be listed in the **Components** list. Pick a component of your choice from this list (see Figure 5.27). If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and **Select** the ones for which the report is to be generated.

4. Then, select the period (**Timeline**) for which the graph is to be generated. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

5. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more components for report generation from the **Components** list. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 5.28). The steps below discuss each of these settings and how they can be customized.

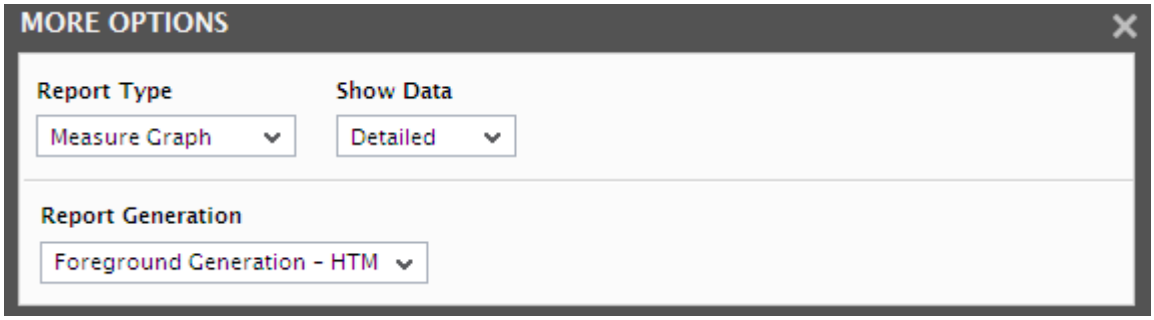


Figure 5.28: The default settings for the Website Performance report

6. Select the type of report to be generated from the **Report Type** list box (see Figure 5.28). The options available are as follows:

   - **Measure**: Select this option if measurement values for different metrics have to be plotted with time of day.
   - **Summary**: Select this option to plot the service level achievements of different metrics during a designated period. When this option is chosen, a **Duration** list will appear with the following options:
     - **Hourly Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on an hourly basis.
     - **Daily Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on a daily basis.
     - **Monthly Summary**: This option, when chosen, highlights the service levels of different measurements (i.e. the % of time a measurement was in compliance with its threshold) on a monthly basis.
   - **Trend**: Selecting this option will enable you to plot the trend values of different metrics computed over a period of time. Past trends in performance can be analyzed and accordingly, the future operational capacity of the targets can be planned using this report. If you select **Trend** as the **Report type**, a **Graph Type** list will appear. The **Graph Type** options are as follows:
     - **Min/Max**: Select this option to generate a report that plots the minimum and maximum values registered by different metrics during a specified timeline.
     - **Avg**: Select this option to generate a report that plots the average values computed for various metrics during a specified timeline.
     - **Sum**: Select this option to generate a report that plots the sum of the values of a measure during a specified timeline.

7. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information base comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend**

information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes that much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 5.28. By default, the **Detailed** option is selected here in Figure 5.28 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the button against the Admin tab is clicked.
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini** file.
  - For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **Run Report button** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
  - To proceed with the **Trend** report generation, click the **OK** button in the message box.

---

8. In large environments, reports generated using months of data can take a long time to complete.

Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

9. Finally, click on the **Run Report** button to generate the graph. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 5.29.

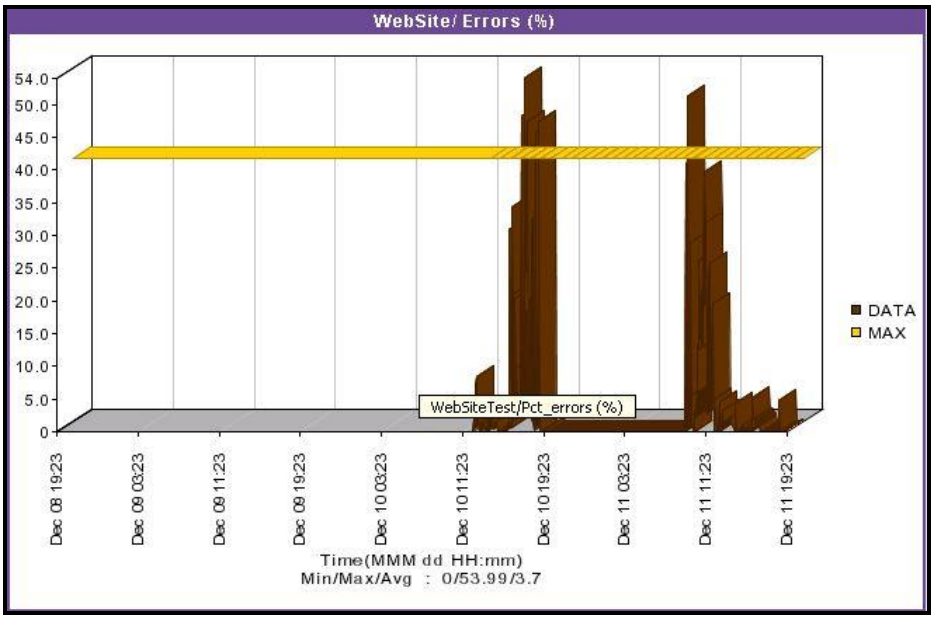


Figure 5.29: The Website Performance report

10. These graphs are the ones that were configured specifically for the web site buy.abc.com (see Figure 5.29). For more details on configuring specific **Site-Measure** reports, refer to Section 3.2.

11. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

5.5 Top Events Report

The **Top Events** report can be used to analyze the history of past events recorded by the eG Enterprise system, to determine which component, component type, or test is seeing the most number of events. Events can also be classified based on severity.

This report serves two main purposes. Administrators can use this report to identify which components or component types are seeing the most events. Using this report, administrators can determine where the "weak links" in their environment are. By classifying the events based on the test that generated the events, administrators can determine which tests are generating the most events. By verifying the authenticity of events being reported for the tests with the highest number of events, administrators can identify the tests for which the threshold settings may need to be tuned (thereby minimizing the number of "false" alerts generated by the system).

To generate a Top Events report, do the following:

1. Select the **Top Events** option from the **Event Analysis** node of the **REPORTS BY FUNCTION** tree.

2. Figure 5.30 will then appear.

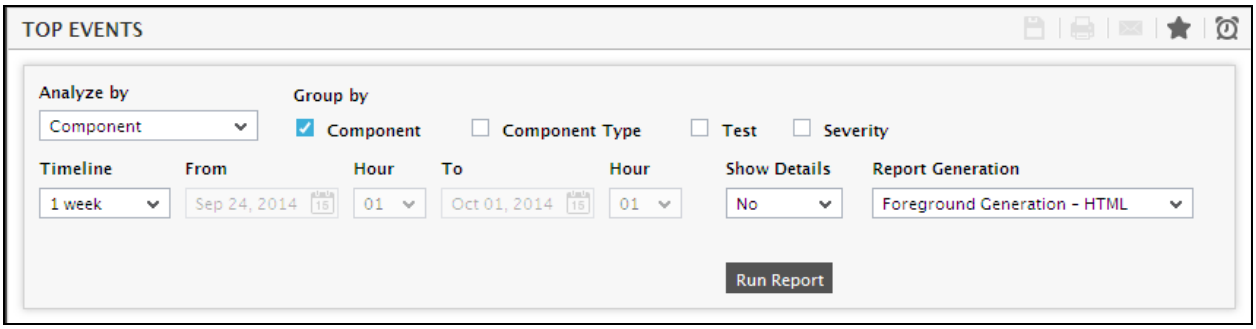


Figure 5.30: Event Analysis for a particular zone

3. If you want to perform an analysis of events pertaining to a particular zone/segment/service, then select the **Zone**, **Segment**, or **Service** option (as the case may be) from the **Analyze by** list box. You will then be prompted to select a specific **Zone**, **Segment**, or **Service** to be analyzed.

4. On the other hand, if you want to analyze the events related to all components across the monitored infrastructure, then select the **Component** option from the **Analyze by** list box (see Figure 5.31).

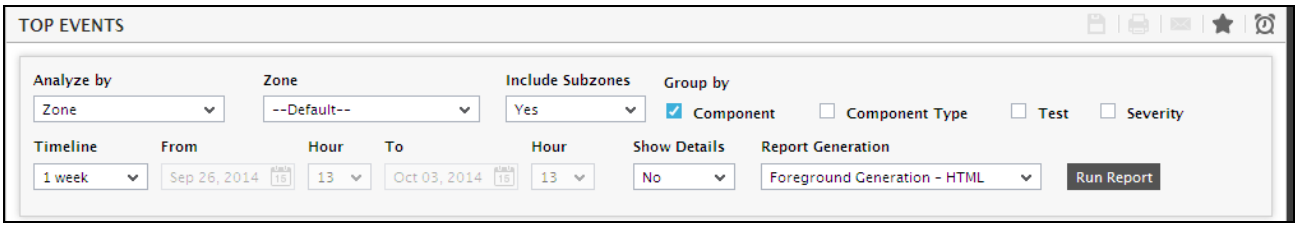


Figure 5.31: Event analysis across the environment

5. Next, you will find that Figure 5.30 offers four check boxes. You can select any/few/all the available check boxes depending upon your reporting needs. For instance, to view the number of alerts that were generated for every component in the target environment or in the selected zone, service, or segment during a particular period, use the component option from the **Group by** section of Figure 5.30. By default, the **Component** option is chosen.

6. Specify a **Timeline** for the report. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

7. Then, proceed to indicate whether the resulting report should include detailed event descriptions or not. By default, the **Event Analysis** report displays an event summary along with a graph depicting event distribution across the chosen parameters (i.e., **Component**, **Component Type**, **Test**, and/or **Severity**). Accordingly, the **Show Details** flag is set to **No** by default. If you want the report to include complete event details, select the **Yes** option.
8. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

9. Finally, click the **Run Report** button. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, and if the **Component** check box had been selected earlier, then, clicking on the **Run Report** button will invoke Figure 5.32. Figure 5.32 displays a bar chart of the top 10 problem-prone components in the monitored environment or in the chosen zone/segment/service. With the most problematic components thus revealed, you can instantly proceed to investigate the reasons for the performance degradation, and promptly initiate the necessary remedial measures.
10. To know how all the other components have performed, look below the bar chart. You will find a tabulated list of all the managed components in the environment or in the selected zone/ service/segment, and the number of **ALERTS** that were generated for every component during the specified **Timeline**. Every number so displayed will be expressed as a percentage of the total number of alerts (displayed at the end of the report), and this value will appear in brackets alongside the number. Moreover, if the **Show Details** flag had been set to **Yes** for the report, then an additional **Details of events** section will appear (see Figure 5.32), which will provide the complete details of the events summarized above.

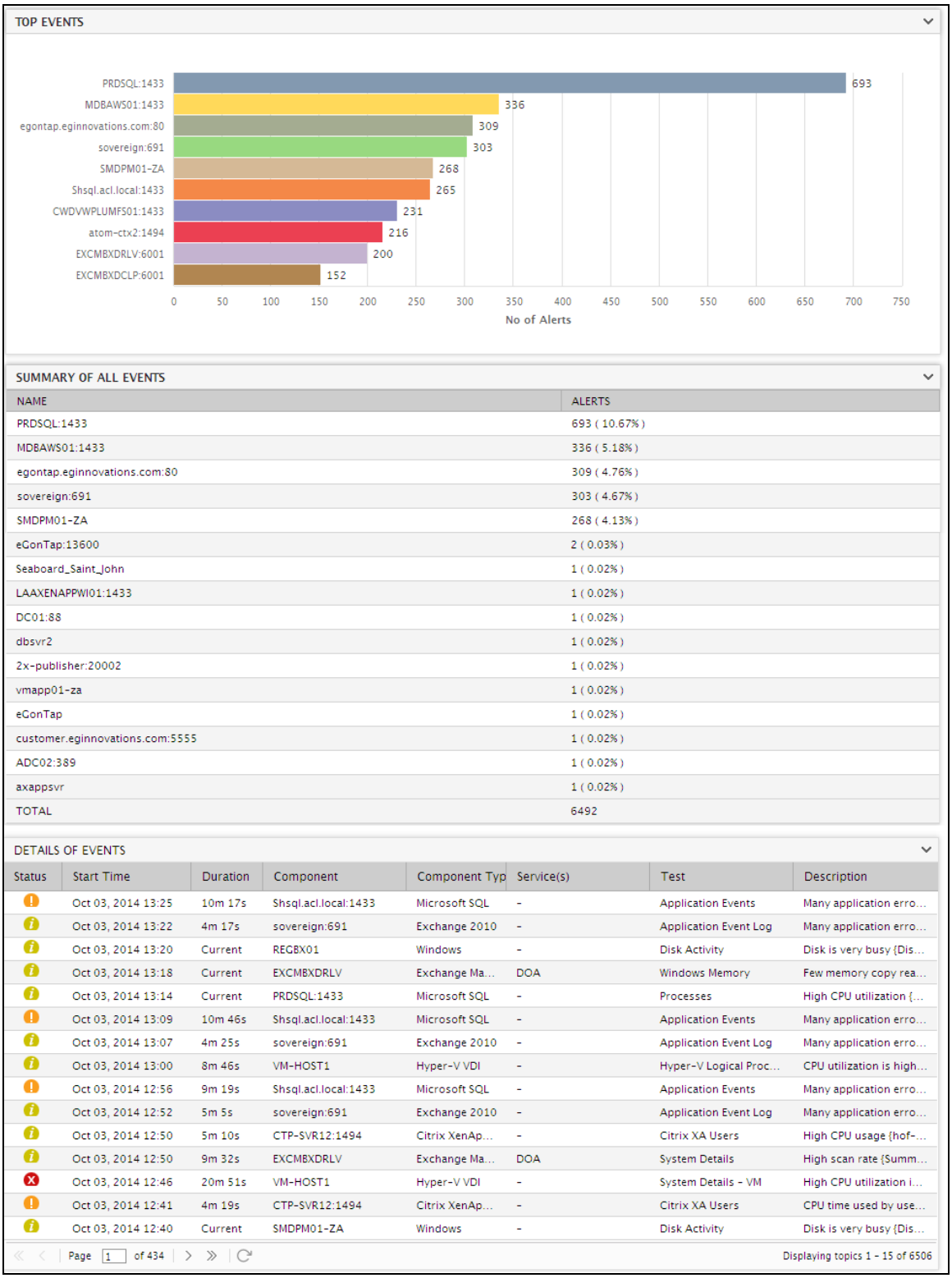
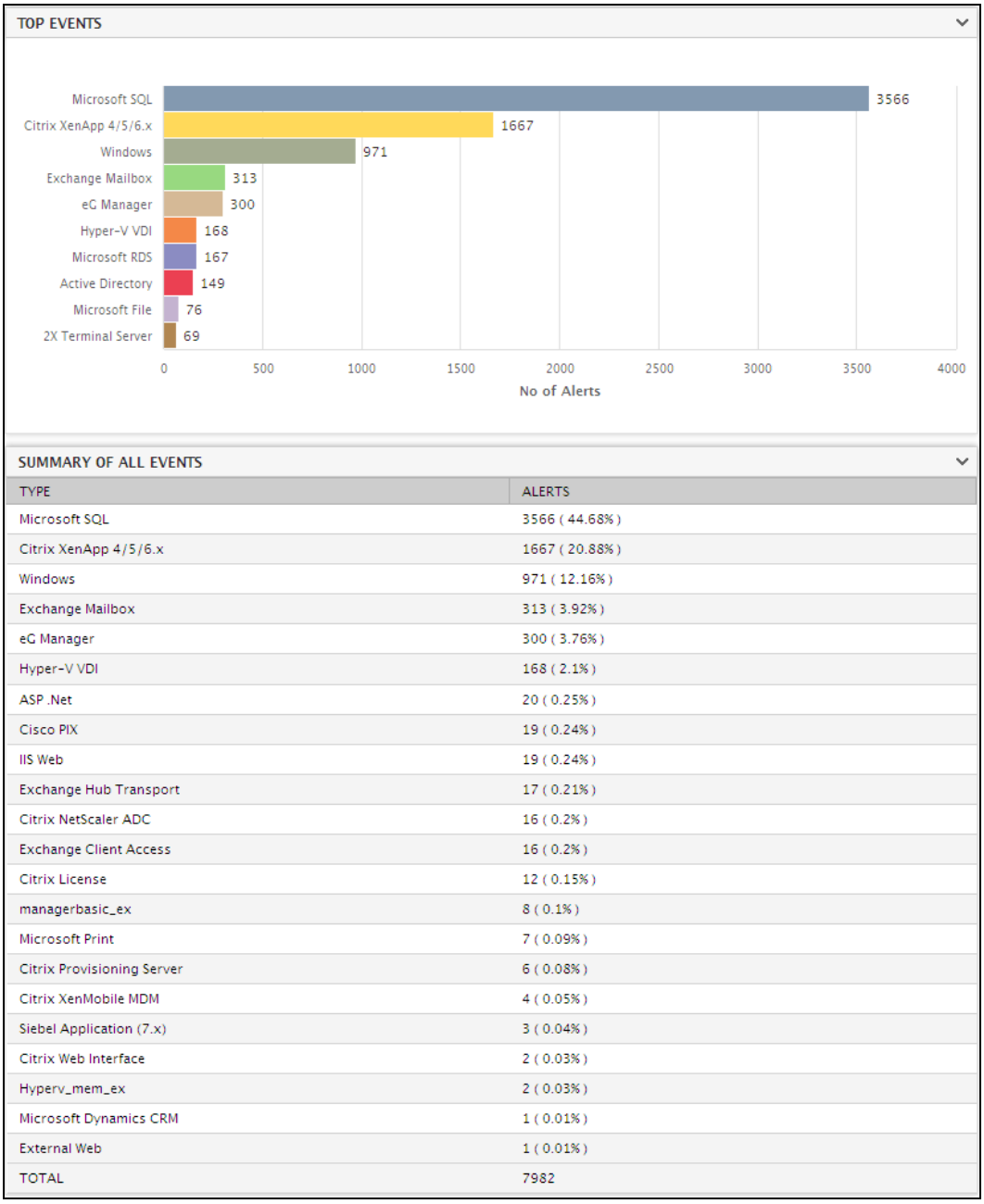


Figure 5.32: An Event Analysis for Components

11. Similarly, if the **Component Type** option had been chosen from Figure 5.30, a bar chart revealing the top 10

problem-prone component-types will appear (see Figure 5.33). Besides this, the complete list of problem component-types in the infrastructure or in the chosen zone/service/segment, and the number of problems they encountered during the specified **Timeline** will also be available. The list is sorted in the descending order of the number of **ALERTS**.



SUMMARY OF ALL EVENTS

TYPE	ALERTS
Microsoft SQL	3566 (44.68%)
Citrix XenApp 4/5/6.x	1667 (20.88%)
Windows	971 (12.16%)
Exchange Mailbox	313 (3.92%)
eG Manager	300 (3.76%)
Hyper-V VDI	168 (2.1%)
ASP .Net	20 (0.25%)
Cisco PIX	19 (0.24%)
IIS Web	19 (0.24%)
Exchange Hub Transport	17 (0.21%)
Citrix NetScaler ADC	16 (0.2%)
Exchange Client Access	16 (0.2%)
Citrix License	12 (0.15%)
managerbasic_ex	8 (0.1%)
Microsoft Print	7 (0.09%)
Citrix Provisioning Server	6 (0.08%)
Citrix XenMobile MDM	4 (0.05%)
Siebel Application (7.x)	3 (0.04%)
Citrix Web Interface	2 (0.03%)
Hyperv_mem_ex	2 (0.03%)
Microsoft Dynamics CRM	1 (0.01%)
External Web	1 (0.01%)
TOTAL	7982

Figure 5.33: An Event Analysis for Component-types

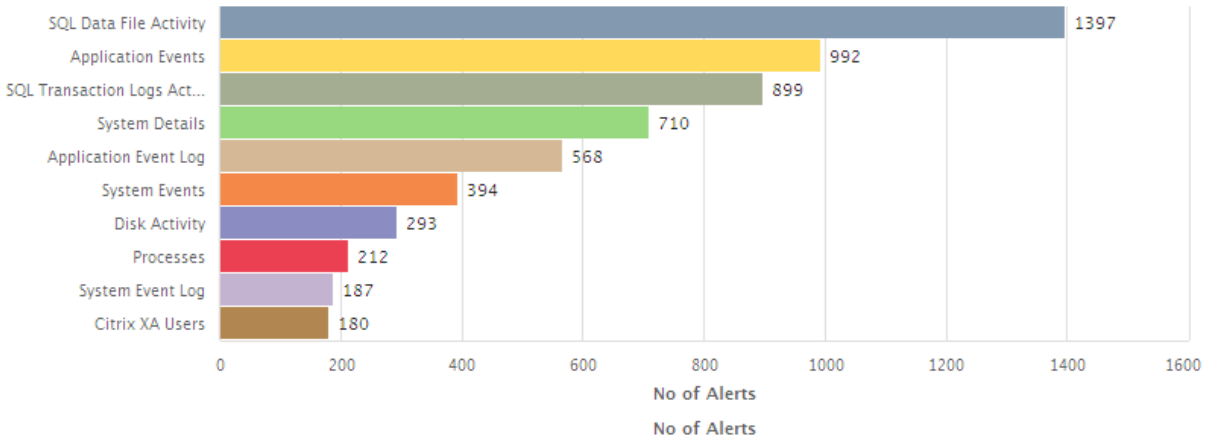
12. Likewise, if the **TEST** option had been chosen earlier, then, the resulting report will enable you to identify at a single glance, the performance areas that have been hit badly during a particular period. The details provided by this report include the following:

    - A bar chart (see Figure 5.34) denoting the top-10 tests that reported the maximum number of performance

issues; a quick glance at this bar chart enables administrators to easily identify the worst performance areas in the environment as a whole or in the chosen zone/segment/service, and assess how badly they have been affected.

- A table that displays the complete list of tests that executed in the environment or in the zone/service/segment, and the number of **ALERTS** per test (see Figure 5.34); accompanying every test is a comma-separated list of problem measures reported by that test, in brackets; this list is sorted in the descending order of the number of alerts, and provides an overview of the test behavior.

TOP EVENTS



SUMMARY OF ALL EVENTS

TEST	METRICS	ALERTS	GRAPH
SQL Data File Activity	I/O stalls,I/O stall reads,I/O stall writes	1397(17.5...	
Citrix Clients	Current connections	7(0.09%)	
Windows Processes	Handle count	7(0.09%)	
Trend manager process	Trend manager status	7(0.09%)	
Active Directory Status	NTLM requests,Schema cache hit ratio	7(0.09%)	
Exchange Public Stores	Average delivery time	2(0.03%)	
WebLogic Server	Server availability	2(0.03%)	
Cluster Resource Pools	Free memory in pool	2(0.03%)	
SQL Blocker Processes	Root blockers	2(0.03%)	
Application Process	Memory utilization	2(0.03%)	
Exchange Mail Service	Receive mail availability,Send mail availability	2(0.03%)	
eG Database Cleanup	Time since recent cleanup,Cleanup status	2(0.03%)	
Active Directory Accesses	LDAP fatal errors	1(0.01%)	
SQL Error Log	User errors	1(0.01%)	
Exchange Mailbox Database	Mount status of mailbox database	1(0.01%)	
SQL Lock Waits	Current lock waits	1(0.01%)	
Active Directory Access	Active directory availability	1(0.01%)	
ESX Storage LUNs	Physical disk reads	1(0.01%)	
Exchange Storage Groups	Users with storage limit prohibit send status	1(0.01%)	
JVM Memory Usage	Used percentage	1(0.01%)	
SQL Long Running Queries	Avg elapsed time	1(0.01%)	
TOTAL		7978	

Figure 5.34: An Event Analysis for Tests

13. On the other hand, if you had chosen the **SEVERITY** option from Figure 5.30, then, you would be able to view the number of critical, major, and minor issues that attacked the environment or the selected zone/service/segment during a given period. This again is graphically represented and available as a tabulation

as well, and clearly indicates the type of errors that were common (see Figure 5.35) during the specified timeline.

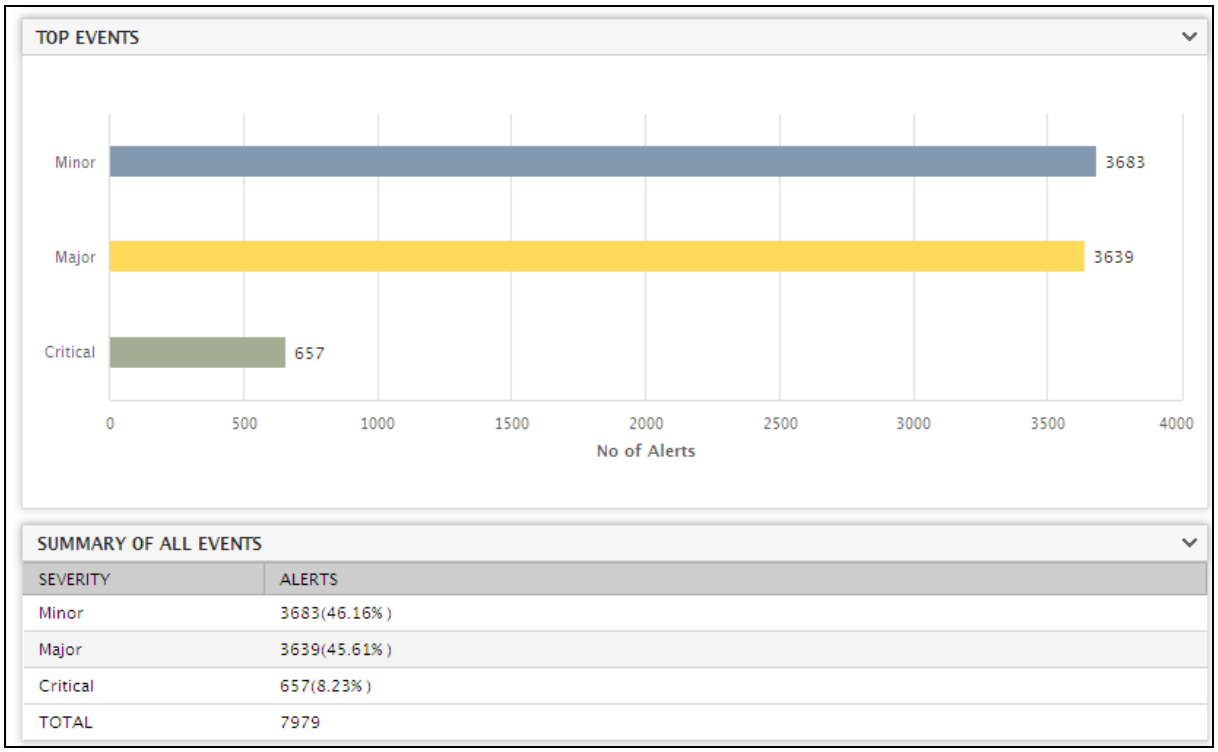
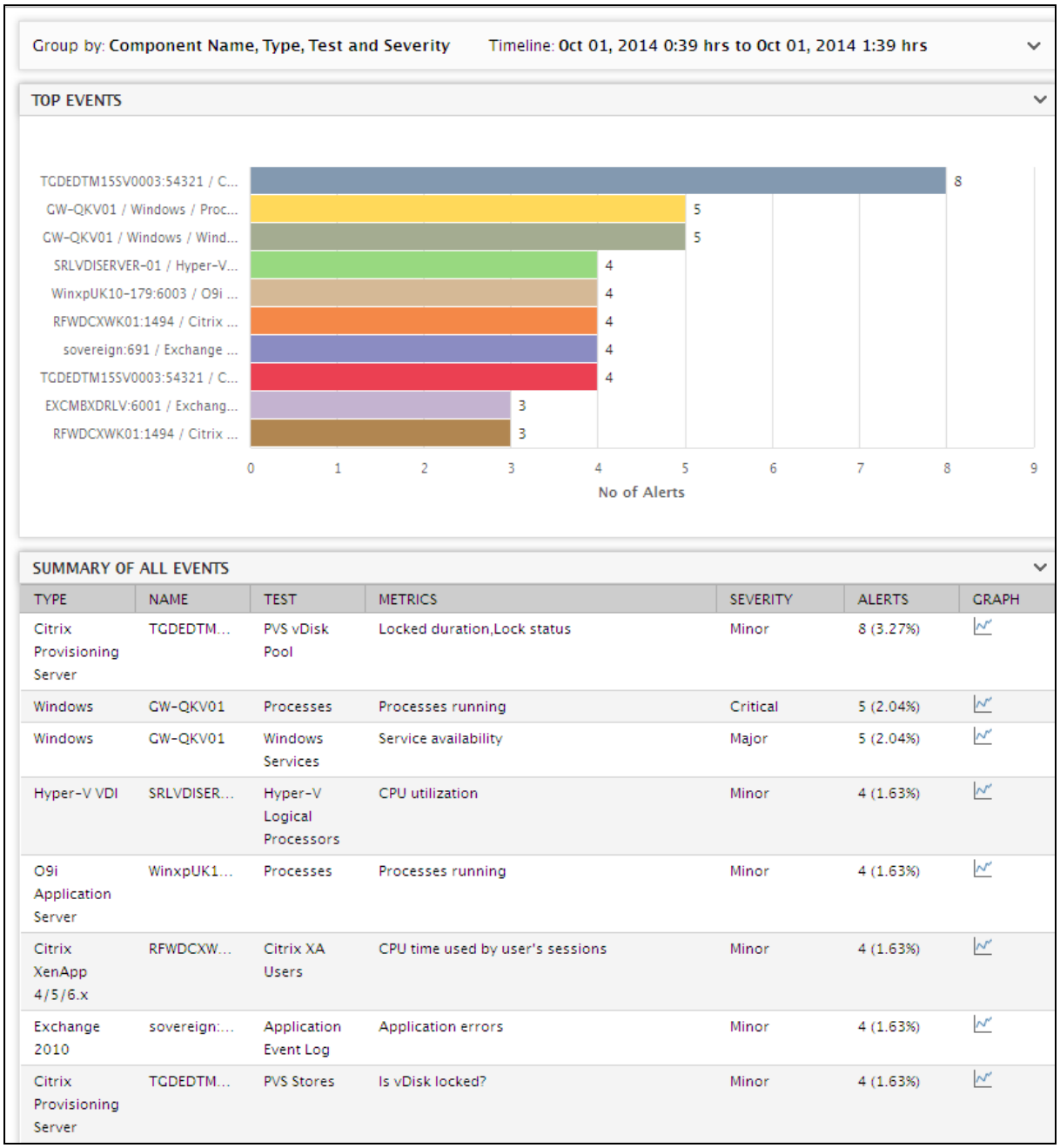


Figure 5.35: An Event Analysis for Alarm Priorities

14. For a deeper insight into the event patterns in your infrastructure or in the zone/segment/service that you have chosen for analysis, you can employ a combination of the parameters provided in Figure 5.30 - i.e., you can choose multiple options from the **EVENT ANALYSIS** page. For instance, selecting all the four options from Figure 5.30, will generate the report depicted by Figure 5.36.



TYPE	NAME	TEST	METRICS	SEVERITY	ALERTS	GRAPH
Citrix Provisioning Server	TGDEDTM...	PVS vDisk Pool	Locked duration,Lock status	Minor	8 (3.27%)	
Windows	GW-QKV01	Processes	Processes running	Critical	5 (2.04%)	
Windows	GW-QKV01	Windows Services	Service availability	Major	5 (2.04%)	
Hyper-V VDI	SRLVDISER...	Hyper-V Logical Processors	CPU utilization	Minor	4 (1.63%)	
O9i Application Server	WinxpUK1...	Processes	Processes running	Minor	4 (1.63%)	
Citrix XenApp 4/5/6.x	RFWDCXW...	Citrix XA Users	CPU time used by user's sessions	Minor	4 (1.63%)	
Exchange 2010	sovereign:...	Application Event Log	Application errors	Minor	4 (1.63%)	
Citrix Provisioning Server	TGDEDTM...	PVS Stores	Is vDisk locked?	Minor	4 (1.63%)	

Figure 5.36: An Event Analysis for all the options offered

15. As you can see, Figure 5.36 displays a bar chart depicting the top-10 event producing combinations. Below the bar chart, is a table that reveals the problem tests and measures for every component in the target environment (or in the zone/service/segment), the number and percentage of alerts that were generated for that component, the alert type (whether critical, major, or minor), and the corresponding component-type. A quick look at this report helps you easily identify the bottleneck areas and the type of issues these areas are been plagued by, so that steps for an early resolution can be immediately taken.

16. If you want this event summary to be supplemented by detailed event information, then set the **Show Details** flag in this page to **Yes**. Doing so invokes a report consisting of a bar chart, followed by an event summary, and

finally, a detailed event-by-event history, which includes the start time of the event, event duration, the affected component, component type, test, and service, and a brief event description.

17. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

5.6 Uptime/Downtime Analysis Reports

Uptime is a key measure of the general health and availability of the critical servers and network devices in an IT infrastructure. Periodic uptime values that the eG agent reports for target servers and devices can alert you to unscheduled reboots that occurred recently; however, to effectively assess server/device availability over time, accurately determine unexpected and prolonged breaks in availability, and accordingly ascertain service level achievements/slippages, a look at the total uptime of a server/device and the total number of reboots it experienced over a period of time is necessary. To enable such an analysis for one/more critical components of an IT infrastructure, eG Enterprise provides **Uptime/Downtime Analysis reports**.

Using the **Uptime/Downtime Analysis reports**, you can figure out the following:

- Which servers/devices are the healthiest, in terms of availability?
- Which servers/devices have been down for the longest period of time? How long was each server/device unavailable during the specified timeline?
- How many times during the designated period did a server/device reboot? How many of these were scheduled reboots? How long was the server/device down before every reboot?

To generate this report, do the following:

1. Select the **Uptime/Downtime Analysis** option from the **Event Analysis** node of the **REPORTS BY FUNCTION** tree.
2. When Figure 5.37 appears, first indicate the **Report Type** to be generated. For viewing the uptime details of components in a table, choose the **Data** option. For graphically representing the uptime/downtime of chosen components, select the **Graph** option.

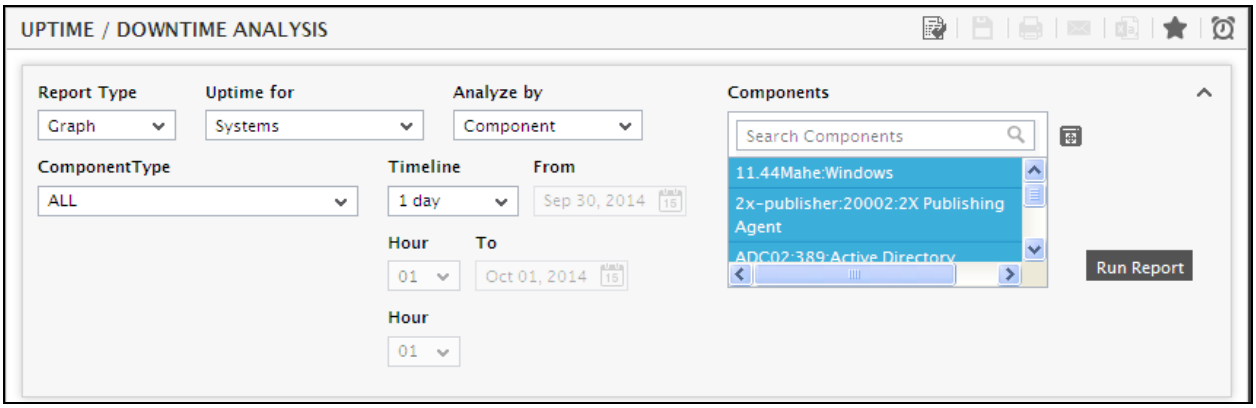


Figure 5.37: Specifying the criteria for Uptime/Downtime Analysis reports

3. Next, pick an option from the **Uptime for** list and indicate whether the report to be generated is for **Systems** or

Network Devices.

4. By default, selecting the **Systems** option from the **Uptime for** list will populate the **Systems** list box in Figure 5.37 with all the managed systems in the target environment. Similarly, by default, selecting the **Network Devices** option from the **Uptime for** list will populate the **Network Devices** list box that will appear in this case, with all the managed network devices in the target environment. You would have to pick and choose the systems/network devices for which the report is to be generated from the **Systems** or **Network Devices** list box (as the case may be).

5. This implies that in the case of large IT infrastructures characterized by hundreds of components, a large number of systems/network devices will be made available for selection in the **Systems** or **Network Devices** list boxes; selecting the desired components from this 'endless' list will hence become a painful exercise. To ease the pain involved in choosing the components for report generation, eG Enterprise provides an **Analyze by** list; by selecting an option from this list, you can quickly condense the **Systems** or **Network Devices** list and then swiftly identify the components of interest to you. By default, the **Component** option is chosen from the **Analyze by** list - this indicates that by default, the **Systems** and **Network Devices** list will display all the managed systems and network devices (as the case may be) in the target environment. The other options in the list include:

   - **Zone**: To generate an uptime report for one/more components that are included in a zone, pick the **Zone** option. A **Zone** drop-down list will then appear, from which you would have to select the zone to which the components of interest to you belong. An **Include Subzone** flag also appears. Indicate whether the components present within the sub-zones of the chosen zone are also to be to be considered for report generation, by setting the **Include Subzone** flag to **Yes**.

   - **Segment**: If you want to generate an uptime report for one/more components that belong to a segment, select the **Segment** option from **Analyze by**, and then pick the **Segment** from the drop-down list that appears.

   - **Service**: If you want to generate an uptime report for one/more components involved in the delivery of a service, select the **Service** option from **Analyze by**, and then pick the required **Service** from the drop-down list that appears.

6. Then, to further filter the components listed in the **Systems** (or **Network Devices**) list box, pick a **Component Type** - this way, only those systems/network devices that are of the chosen type will be available for selection in the **Systems** (or **Network Devices**) list box. By default, the **ALL** option is chosen here indicating that all managed systems/network devices in the target environment will be displayed in the **Systems** (or **Network Devices**) list box by default.

7. Select the systems/network devices for which uptime reports are to be generated from the **Systems** or **Network Devices** list box (as the case may be). If the list consists of too many **Systems** or **Network Devices**, then viewing all the systems/network devices and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Systems** or **Network Devices** list (as the case may be). The **SYSTEMS/NETWORK DEVICES** pop up window will then appear using which you can view almost all the systems/network devices in a single interface and select the ones for which the report is to be generated.

8. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

9. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more **Systems** or **Network Devices** for report generation. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (See Figure 5.38). The steps below discuss each of these settings and how they can be customized.

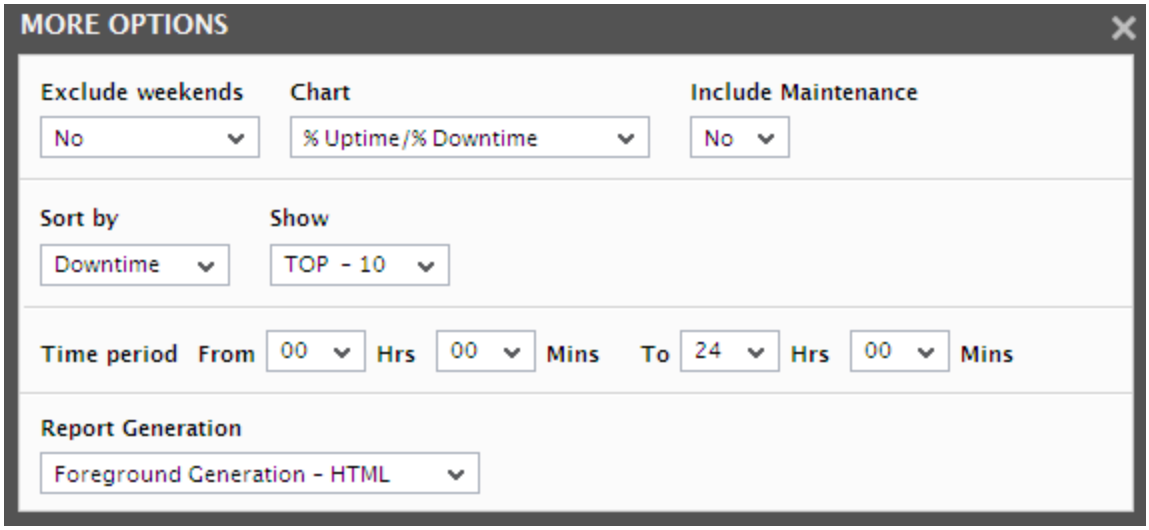


Figure 5.38: The default settings for generating the Uptime/Downtime Analysis reports

10. By default, the Uptime/Downtime Analysis report ignores all reboots that occur when a 'maintenance policy configuration' is active on a component - in other words, such reboots are by default excluded from the count of reboots displayed by the report. This default behavior is governed by the **Include Maintenance** flag, which is set to **No** by default. You can however, optionally configure the Uptime report to include reboots that occur during maintenance periods in its count of reboots. For this, set the **Include Maintenance** flag to **Yes**.

11. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.
12. If the **Report Type** is **Data**, then, a **Show Details** flag will appear set to **No** by default. This indicates that, by default, the resulting **Data** report will not provide reboot details. To view reboot details along with the uptime details, set the **Show Details** flag to **Yes**.

You can configure the days of the week that need to be considered as a 'weekend' using the **Days** parameter in the **[EXCLUDE_WEEKEND]** section in the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory). The **Days** parameter is set to *Saturday,Sunday* by default. To change this weekend specification, enter two other days of the week against the **Days** parameter.

13. If the **Report Type** you have chosen is **Graph**, then a **Chart** drop-down list will appear from which you can select how uptime/downtime should be represented in the graph - as a percentage? or in hours?. If the **%Uptime/%Downtime** option is chosen, then the resulting graph will plot the percentage of time for which the selected components have been up/down. On the other hand, if the **Uptime/Downtime** option is selected, then the graph will plot the total number of hours for which the chosen components have been up/down.
14. Next, select the data on the basis of which the report should be sorted. By default, the **Downtime** option is chosen from the **Sort by** list.
15. Since the default **Sort by** option is **Downtime**, by default, the report provides the details of only the top-10 components with the maximum downtime. If a different **Sort by** option, say **Reboots**, is chosen, then the report, by default, will only pertain to the top-10 components in the environment, on the basis of the number of reboots. You can choose a different top-n / last-n option from the **Show** list, if need be.

By default, the values displayed in the **Show** list range from **TOP-10** to **LAST-10**. This is because, the **Showtop** parameter in the **[INFOS]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory) is set to 10, by default. You can, if required, configure the **Show** list to display a different range of options. For this, specify a different number against the **Showtop** parameter, and save the **eg_report.ini** file.

16. Next, indicate the report **Timeperiod**.

By default, the **Timeperiod** is set to *24 hours*. Accordingly, the **From** and **To** parameters in the **[TIMEFRAME]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory) are set to *00:00* and *24:00* respectively. If need be, you can override this default setting by configuring a different timeframe against the **From** and/or **To** parameters.

17. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

18. Finally, click the **Run Report** button.
19. If the **Report Type** is **Graph**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then clicking the **Run Report** button will reveal a bar graph (see Figure 5.39) depicting the uptime and downtime of the chosen components. From this graph, you can easily identify the components that have been unavailable during the specified **Timeline**, and the duration of the unavailability.

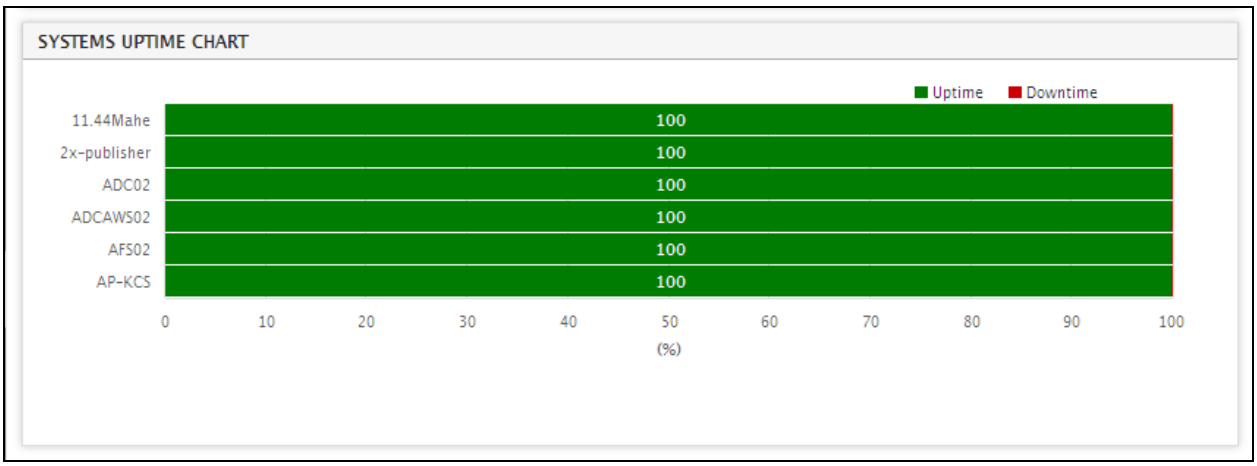


Figure 5.39: The Uptime Graph for Chosen Components

20. Clicking on the bar corresponding to any of the components displayed in Figure 5.39 will invoke Figure 5.40 which will allow you to zoom into the uptime details of that particular component. Besides providing a pie chart that depicts the percentage uptime and downtime of the chosen component, Figure 5.40 also provides the following useful information:
    - The total duration for which the chosen component was up and running during the specified **Timeline**;
    - The percentage uptime of the component;
    - The total duration for which the chosen component was down during the specified **Timeline**;
    - The percentage downtime of the component;
    - The total number of reboots that the component experienced during the specified **Timeline**;
    - A **Reboot Details** section that indicates the following for every reboot:
        - When the component was shutdown
        - When the reboot occurred
        - The duration for which the component remained shutdown before being rebooted;

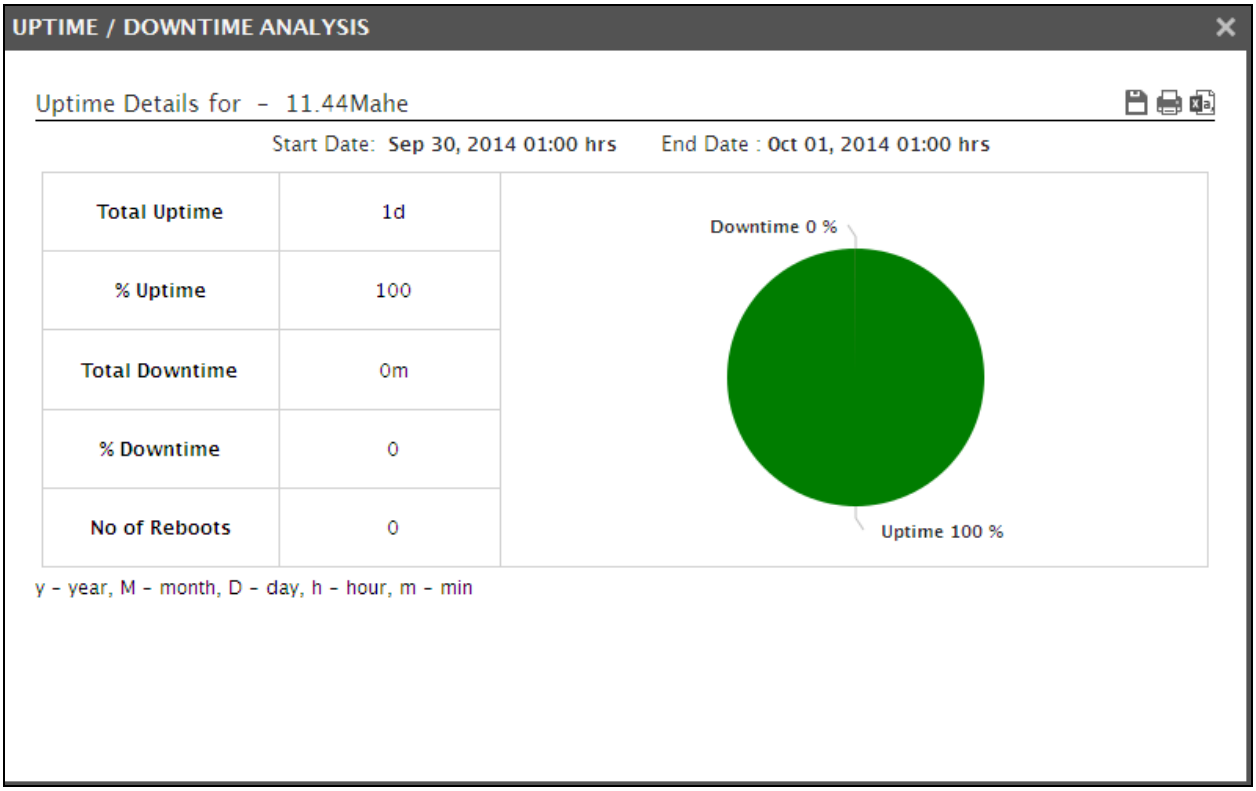


Figure 5.40: Additional uptime details

21. Using the **Uptime Details** page, you can figure out how often a component was rebooted, and thus determine whether such reboots were scheduled or unexpected.

22. If the **Report Type** is **Data**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then clicking on the **Run Report** button will reveal Figure 5.41. For every component chosen, the **Data** report reveals the total uptime, total downtime, percentage uptime, percentage downtime, and number of

reboots. Components with high uptime/downtime and those that rebooted frequently can be instantly isolated using this report. Since the **Show details** flag is set to **No** by default for the **Data** report, Figure 5.41 will not include a separate section providing reboot information. To view the reboot details of a component therefore, you will have to click on the icon under the **Details** column corresponding to that component. This icon will appear only if that component was rebooted at least once during the specified **Timeline**.

SYSTEMS UPTIME REPORT

SERVER	UPTIME (YMDHM)*	% UPTIME	DOWNTIME (YMDHM)*	% DOWNTIME	REBOOTS	DETAILS
ADCAWS02	29d 23h 37m	99.95	23m	0.05	2	
AFS02	29d 23h 50m	99.98	10m	0.02	2	
2x-publisher	29d 23h 57m	99.99	3m	0.01	1	
11.44Mahe	30d	100	0	0	0	-
ADC02	30d	100	0	0	0	-
AP-KCS	30d	100	0	0	0	-

y - year, M - month, d - day, h - hour, m - min

Figure 5.41: The Uptime Data Report

23. Figure 5.42 will then appear providing the reboot information in a separate window.

UPTIME / DOWNTIME ANALYSIS

Reporter Data

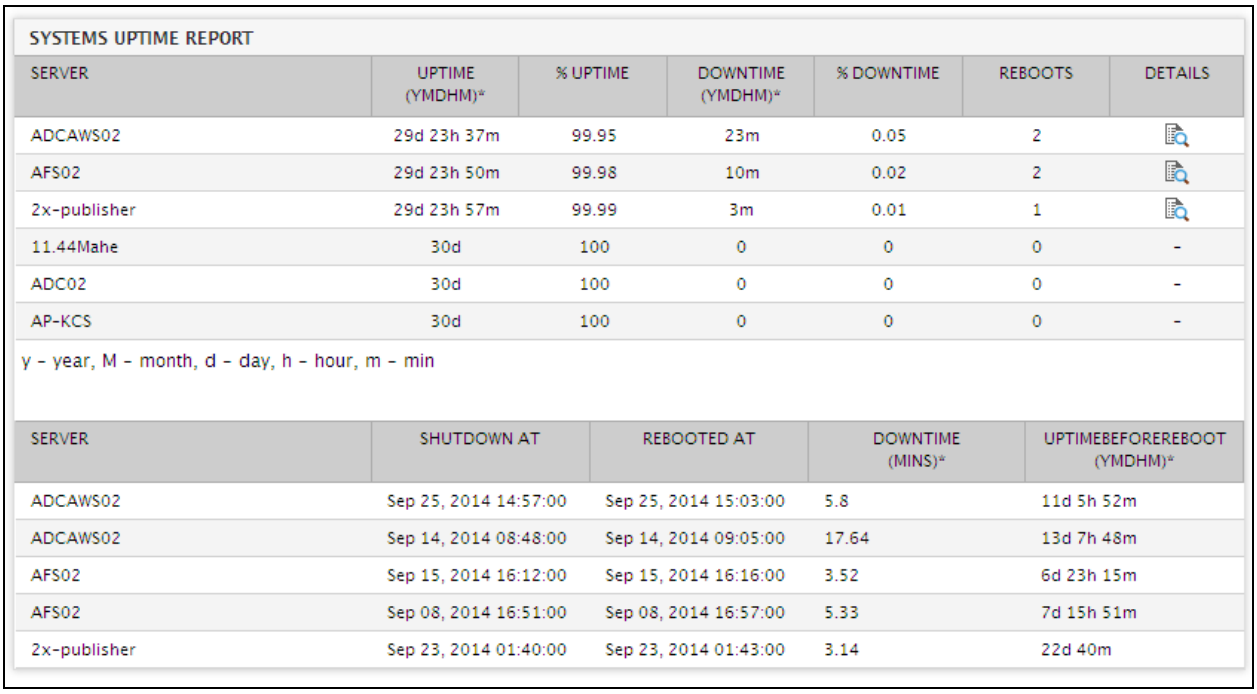
Reboot Details for ADCAWS02

Start Date: **Sep 01, 2014 01:00 hrs** End Date : **Oct 01, 2014 01:00 hrs**

Shutdown At	Rebooted At	Downtime (mins)	UptimeBeforeReboot (yMdhm)
Sep 25, 2014 14:57:00	Sep 25, 2014 15:03:00	5.8	11 d 5h 52m
Sep 14, 2014 08:48:00	Sep 14, 2014 09:05:00	17.64	13 d 7h 48m

Figure 5.42: The Reboot Details appearing in a separate window

24. If the **Show Details** flag had been set to **Yes** instead, then the reboot details available in Figure 5.43 be provided as part of the original report itself as depicted below.



SYSTEMS UPTIME REPORT

SERVER	UPTIME (YMDHM)*	% UPTIME	DOWNTIME (YMDHM)*	% DOWNTIME	REBOOTS	DETAILS
ADCAWS02	29d 23h 37m	99.95	23m	0.05	2	
AFS02	29d 23h 50m	99.98	10m	0.02	2	
2x-publisher	29d 23h 57m	99.99	3m	0.01	1	
11.44Mahe	30d	100	0	0	0	-
ADC02	30d	100	0	0	0	-
AP-KCS	30d	100	0	0	0	-

y - year, M - month, d - day, h - hour, m - min

SERVER	SHUTDOWN AT	REBOOTED AT	DOWNTIME (MINS)*	UPTIMEBEFOREREBOOT (YMDHM)*
ADCAWS02	Sep 25, 2014 14:57:00	Sep 25, 2014 15:03:00	5.8	11d 5h 52m
ADCAWS02	Sep 14, 2014 08:48:00	Sep 14, 2014 09:05:00	17.64	13d 7h 48m
AFS02	Sep 15, 2014 16:12:00	Sep 15, 2014 16:16:00	3.52	6d 23h 15m
AFS02	Sep 08, 2014 16:51:00	Sep 08, 2014 16:57:00	5.33	7d 15h 51m
2x-publisher	Sep 23, 2014 01:40:00	Sep 23, 2014 01:43:00	3.14	22d 40m

Figure 5.43: The Uptime Data report displaying reboot details as well

25. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

5.7 History of Alarms

The **History of Alarms** report, as its name suggests, provides details of all the alarms that were generated by the eG manager during a configured period of time in the past.

Note

If the user who logs into the eG Reporter console has been assigned only VMs for monitoring (and not any other component), then the **Operations** menu will provide only the **History of Alarms** report option. In this case, the **History of Alarms** will list all the historical alarms related to the VMs that have been assigned to the current user.

Historical analysis of alarms reveals recurring issues and problem-prone components, and helps deduce problem patterns. Using the filter option provided by the report, you can zoom into specific types of problems and scrutinize them closely. The report also provides analytical tools like detailed diagnosis and graphs, which can be used to perform a post-mortem of the problems and diagnose the root-cause of issues.

To generate this report, do the following:

1. Select the **History of Alarms** option from the **Event Analysis** node of the **REPORTS BY FUNCTION** tree.
2. Figure 5.44 then appears.

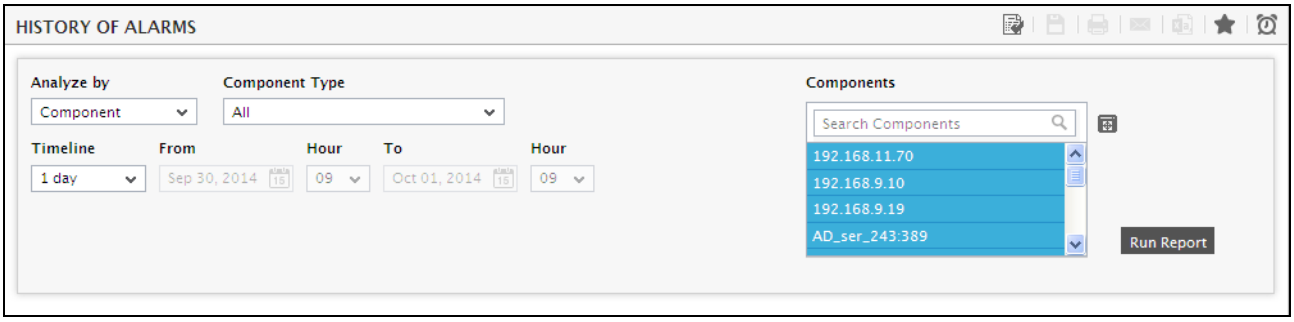


Figure 5.44: Generating the History of Alarms report

3. You can build filter conditions using Figure 5.44 so that, you can selectively view the alarm history. The first step towards building these filter conditions is selecting a basis for the filter. This can be achieved by picking an option from the **Analyze by** list. The options available here are as follows:

   - **Component** : This is the default selection in the **Analyze by** list. This implies that by default, the **HISTORY OF ALARMS** report is generated for all managed components in the environment. If you proceed with the default selection, then, you will find that **All** is the default selection in the **Component Type** list, and all the managed components in the environment populate the **Components** list. If you want to view the alarm history of a particular component of a particular component-type, pick the type of your choice from the **Component Type** list; this will make sure that the **Components** list consists of only those managed components that are of the chosen type. You can then easily pick the component of your choice from the **Component** list.
   - **Zone**: Selecting this option from the **Analyze by** list will invoke a **Zone** list. Select a particular zone from this list, if you want to view the history of alarms related to that zone. An **Include Subzones** flag also appears. By setting this flag to **Yes**, you can make sure that the alarm history also includes those alarms that are associated with the sub-zones of the chosen zone.

     Once a **Zone** is selected, the **Component Type** and **Components** lists will be populated with those component types and components (respectively) that are part of the selected zone. To view the alarm history of a component that is part of a zone, pick that component from the **Components** list. If the **Components** list has too many components to choose from, then, you can condense the list by first picking a **Component Type**; this will make sure that the **Components** list consists of those components in the selected zone that are of the chosen type. You can then easily pick the component of your choice from the **Components** list.

     Note that the 'Zone' option will not be available in the 'Analyze by' list if no zones are configured in the environment.
   - **Segment**: If this option is chosen from the **Analyze by** list, a **Segment** list will additionally appear. In order to view the alarm history pertaining to a specific segment, pick a segment from the **Segment** list.

     Once a **Segment** is selected, the **Component Type** and **Components** lists will be populated with those types and components (respectively) that are part of the selected segment. To view the alarm history of a component that is part of a segment, pick that component from the **Components** list. If the **Components** list has too many components to choose from, then, you can condense the list by first picking a **Component Type**; this will make sure that the **Components** list consists of those components in the selected segment that are of the chosen type. You can then easily pick the component of your choice from the **Components**

list.

Note that the 'Segment' option will not be available in the 'Analyze By' list if no segments are configured in the environment.

- **Service**: If this option is chosen from the **Analyze by** list, a **Service** list will additionally appear. In order to view the alarm history pertaining to a specific service, pick a service from the **Service** list.

  Once you choose a **Service**, the **Component Type** and **Components** lists in Figure 5.44 will be populated with those types and components (respectively) that are engaged in the delivery of the said service. If you want to view the alarm history of a component that supports the selected service offering, pick that component from the **Components** list. If the **Components** list has too many components to choose from, then, you can condense the list by first picking a **Component Type**; this will make sure that the **Components** list consists of those components in the selected service that are of the chosen type. You can then easily pick the component of your choice from the **Components** list.

  Note that the 'Service' option will not be available in the 'Analyze by' list if no services are configured in the environment.

4. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and **Select** the ones for which the report is to be generated.
5. For viewing the details of alarms that were generated during a specific time window, select a fixed **Timeline**, or choose **Any** to provide a date/time range.
6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more components from the **Components** list. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 5.45). The steps below discuss each of these settings and how they can be customized.

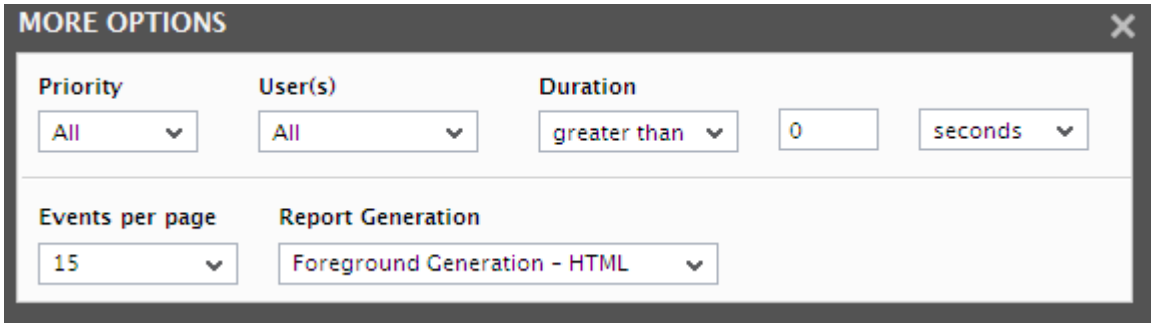


Figure 5.45: The default settings for generating the History of Alarms report

7. You can even choose to view the details of past alarms that are of a particular priority, by selecting that priority from the **Priority** list. *All* is the default selection here.
8. If you wish to view the alarms assigned to a chosen user in your environment, then select the user from the **User(s)** list. By default, **All** option will be chosen from this list indicating that the alarms pertaining to all the users will be listed by default.
9. Next, to view the alarms that have remained unresolved for a time period that is in excess of a specified duration, select the **greater than** option from the **Duration** list, enter a value in the adjacent text box, and then select a unit of time from the list box alongside. For example, to view the history of the alarms that have

remained unresolved for over 1 hour, select the **greater than** option, enter **1** in the text box alongside, and select **hours** from the list box adjacent to it.

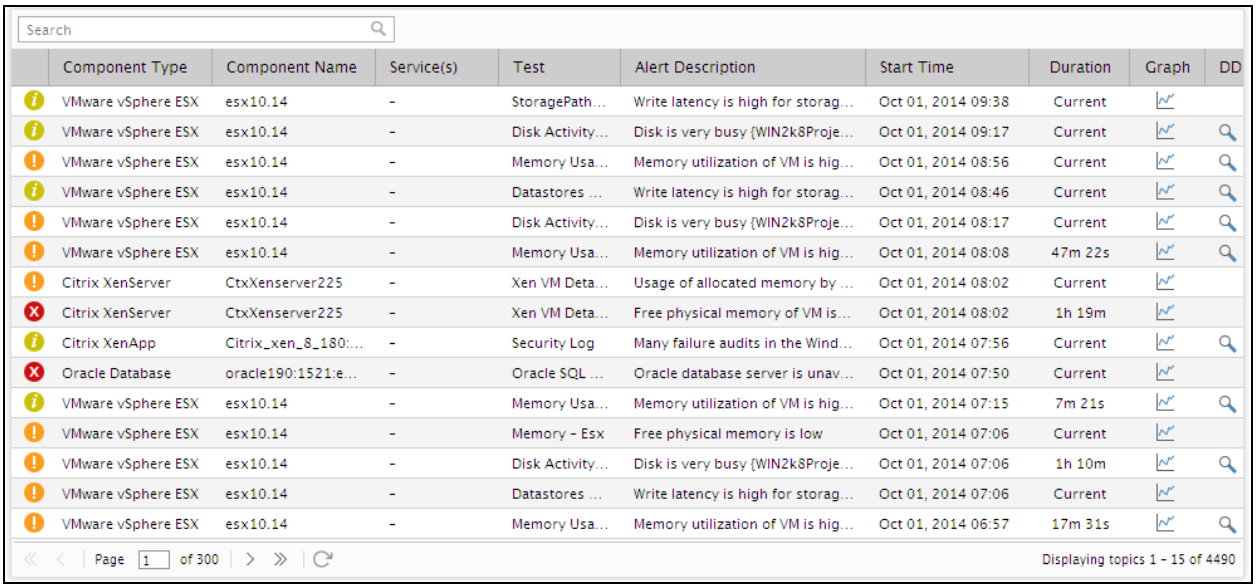
10. Similarly, you can view the history of alarms that have remained unresolved for a time period lesser than a specified duration. To achieve this, select the **lesser than** option from the **Duration** list, specify a value in the adjacent text box, and select a unit of time from the list box.

11. In addition, you can configure the number of event records to be displayed per page of the event history. By default, 15 records are displayed per page. To display more records, select an appropriate value from the **Events per page** list.

12. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

13. Finally, click the **Run Report** button to generate the report. Figure 5.46 then appears.



Search

	Component Type	Component Name	Service(s)	Test	Alert Description	Start Time	Duration	Graph	DD
	VMware vSphere ESX	esx10.14	-	StoragePath...	Write latency is high for storag...	Oct 01, 2014 09:38	Current		
	VMware vSphere ESX	esx10.14	-	Disk Activity...	Disk is very busy {WIN2k8Proje...	Oct 01, 2014 09:17	Current		
	VMware vSphere ESX	esx10.14	-	Memory Usa...	Memory utilization of VM is hig...	Oct 01, 2014 08:56	Current		
	VMware vSphere ESX	esx10.14	-	Datastores ...	Write latency is high for storag...	Oct 01, 2014 08:46	Current		
	VMware vSphere ESX	esx10.14	-	Disk Activity...	Disk is very busy {WIN2k8Proje...	Oct 01, 2014 08:17	Current		
	VMware vSphere ESX	esx10.14	-	Memory Usa...	Memory utilization of VM is hig...	Oct 01, 2014 08:08	47m 22s		
	Citrix XenServer	CtxXenserver225	-	Xen VM Deta...	Usage of allocated memory by ...	Oct 01, 2014 08:02	Current		
	Citrix XenServer	CtxXenserver225	-	Xen VM Deta...	Free physical memory of VM is...	Oct 01, 2014 08:02	1h 19m		
	Citrix XenApp	Citrix_xen_8_180:...	-	Security Log	Many failure audits in the Wind...	Oct 01, 2014 07:56	Current		
	Oracle Database	oracle190:1521:e...	-	Oracle SQL ...	Oracle database server is unav...	Oct 01, 2014 07:50	Current		
	VMware vSphere ESX	esx10.14	-	Memory Usa...	Memory utilization of VM is hig...	Oct 01, 2014 07:15	7m 21s		
	VMware vSphere ESX	esx10.14	-	Memory - Esx	Free physical memory is low	Oct 01, 2014 07:06	Current		
	VMware vSphere ESX	esx10.14	-	Disk Activity...	Disk is very busy {WIN2k8Proje...	Oct 01, 2014 07:06	1h 10m		
	VMware vSphere ESX	esx10.14	-	Datastores ...	Write latency is high for storag...	Oct 01, 2014 07:06	Current		
	VMware vSphere ESX	esx10.14	-	Memory Usa...	Memory utilization of VM is hig...	Oct 01, 2014 06:57	17m 31s		

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Figure 5.46: The HISTORY OF ALARMS report

14. In this report, the details pertaining to every alarm like the start time, duration, name of the component, component-type, test, alarm description, and the service (if any) that is impacted by the issue, are available. Every row of alarm information will be accompanied by a colored indicator that indicates the corresponding alarm priority. Critical alarms will be of the color red, major alarms will be in orange, and the minor ones come in yellow. An alarm with the end time set to current denotes a problem that has still not been fixed.

15. You can search the generated report for a particular alarm based on various criteria. For instance, to search for alarm information related to all managed components of a particular type, provide the whole/part of the component type to search for in theSearch text box and click the icon alongside. Likewise, you can search based on **Component Name**, **Service**, **Test**, and **Alarm Description**.

16. Typically whenever an alarm is raised for the problems at the host-level of a component, the **HISTORY OF ALARMS** page automatically sets the **Component type** to **Host system**, even if the component affected is say, an **Oracle Database server** or a **Web server**. From this alarm information, users cannot determine the exact **Component type** of the affected component. Moreover, help desk personnel may prefer to view the operating system of the problem host as part of the alarm information displayed in the **History of Alarms** page, as such an information will greatly simplify the troubleshooting process. To make sure that the **History of Alarms** page enables help desk to easily understand, interpret, and solve problems affecting a host's performance, you can optionally configure the eG Enterprise system to display the actual **Component type**, **Host system**, or the affected **Operating system** for host-level alarms in the **History of Alarms** page. To enable this capability, do the following:

    - Edit the **eg_ui.ini** flag in the **<EG_INSTALL_DIR>\manager\config** directory
    - In the **[HOST_SYSTEM]** section of this file, set the **Show_HostSystem** flag to any one of the following values mentioned below:
        - Set the **Show_HostSystem** flag to **HostSystem** if you want the component type to be displayed as **Host system** for the host-level alarms;
        - Set the **Show_HostSystem** flag to **CompType** if you want to display the affected component; This is the default setting that is provided;
        - Set the **Show_HostSystem** flag to **OS** if you want to display the operating system of the host;
    - Finally, save the file.

This configuration affects the **CURRENT ALARMS** window, email/SMS alerts, and SNMP traps as well.

17. The **HISTORY OF ALARMS** report also comprises of the icon, which when clicked, allows you to view the graph of the corresponding measure for the last one hour. If the detailed diagnosis capability has been enabled for the eG installation, then problem measures for which detailed diagnosis is available will be accompanied by the icon. When this icon is clicked, the detailed diagnosis of the measure will appear, throwing greater light on the problem condition.
18. The **NEXT**, **PREVIOUS**, **LAST** and **FIRST** buttons, and the **Page** text box are provided to enable you to easily browse the alarm information that runs across pages.
19. To save you the trouble of scrolling up the report everytime you want to relook at the report criteria, eG Reporter now includes a separate section with a summary of your specifications. Clicking the button in this section expands your report criteria so that you can alter your specification at any point of time.
20. To hide the expanded report criteria, simply click on the button.

5.8 History of Unknowns

Besides alarms, eG Reporter also enables users to historically analyze those tests, measures and components that were in an **UNKNOWN** state during a given timeline in the past. A test can switch to an **UNKNOWN** state when the eG Enterprise system is unable to determine the state of one/more metrics that test reports - this could be because of any of the following reasons:

- The test could have been wrongly configured;
- The eG agent executing the test could have suddenly stopped;
- The eG agent may have been unable to pull out metrics from the server;
- The eG agent executing the test may not be able to transmit the metrics collected by that test to the eG manager, owing to say, poor network connectivity;

Performing effective reactive analysis on the **UNKNOWN** measures, will enable administrators to understand which tests and measures often switched to the 'indeterminate' state and why, and which components and business services were affected by this switch. For this analysis, the eG Reporter allows the generation of the **History of Unknowns** report.

To generate this report, do the following:

1. From the eG Reporter interface, select the **History of Unknowns** option from the **Event Analysis** node of the **REPORTS BY FUNCTION** tree.
2. Figure 5.47 will then appear.

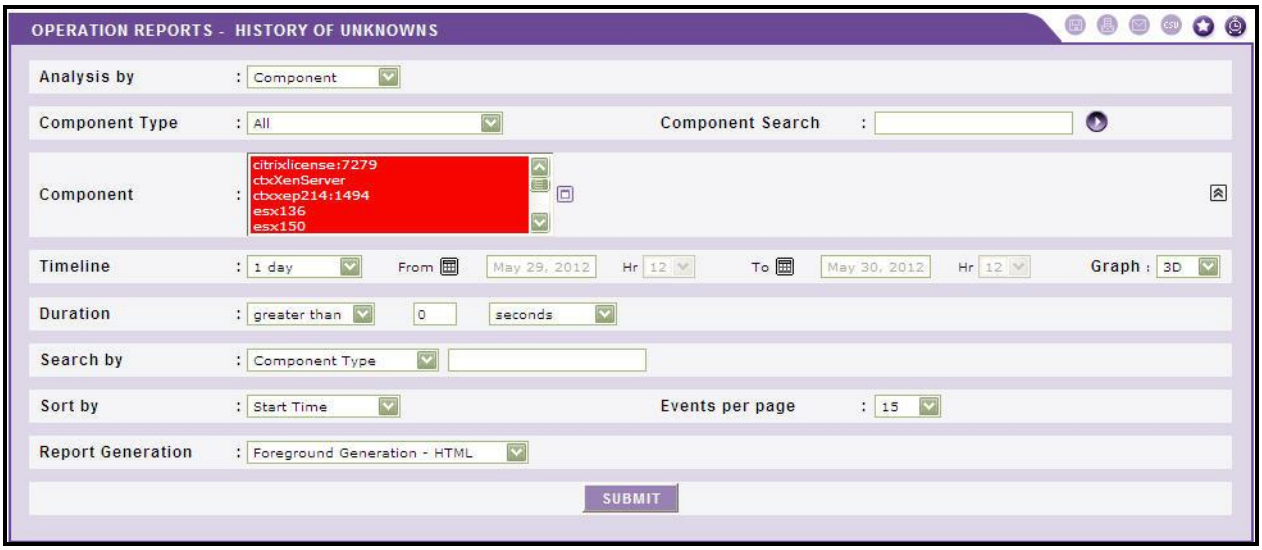

OPERATION REPORTS - HISTORY OF UNKNOWNS
Analysis by : Component
Component Type : All
Component Search :
Component : citrixlicense:7279 ctxXenServer ctxxep214:1494 esx136 esx150
Timeline : 1 day From May 29, 2012 Hr 12 To May 30, 2012 Hr 12 Graph : 3D
Duration : greater than 0 seconds
Search by : Component Type
Sort by : Start Time Events per page : 15
Report Generation : Foreground Generation - HTML
SUBMIT

Figure 5.47: Generating a History of Unknowns report

3. From the **Analyze by** list, pick a criterion for filtering the **Component Type** list. By default, the **Components** option will be chosen from the **Analyze by** list - this is why, all the managed component types in the environment will be made available for selection in the **Component Type** list. In large environments characterized by numerous components of heterogeneous types, this **Component Type** list will be very long, making selection difficult! To avoid this, you can pick any of the following filter criteria instead from the **Analyze by** list:
   - **Service**: Select this option if the components of interest to you are engaged in the delivery of a particular business service. If this option is chosen, then a **Service** drop-down will appear, from which you can select a specific service. The **Component Type** list will then be populated with only those component types that are associated with the chosen service.
   - **Segment**: Select this option if the components of interest to you are part of a segment topology. If this option is chosen, then a **Segment** drop-down will appear, from which you can select a specific segment. The **Component Type** list will then be populated with only those types of the component that belong to the chosen segment.
   - **Zone**: Select this option if the components of interest to you have been added to a specific zone. If this option is chosen, then a **Zone** drop-down will appear, from which you can select a specific zone. The **Component Type** list will then be populated with only those components that are part of the chosen zone. If the selected **Zone** contains sub-zone, you can additionally indicate whether/not the component types that are included in the sub-zones should also appear in the **Component Type** list. To include the sub-zone components as well, set the **Include Subzones** flag to **Yes**; to disregard the components in sub-zones, set this flag to **No**.
4. Pick a type from the **Component Type** list.
5. From the **Components** list, select one/more components for which the report is to be generated. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
6. Then, specify the **Timeline** for the report. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you select one/more components from the **Components** list for report generation. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window. The steps below discuss each of these settings and how they can be customized.

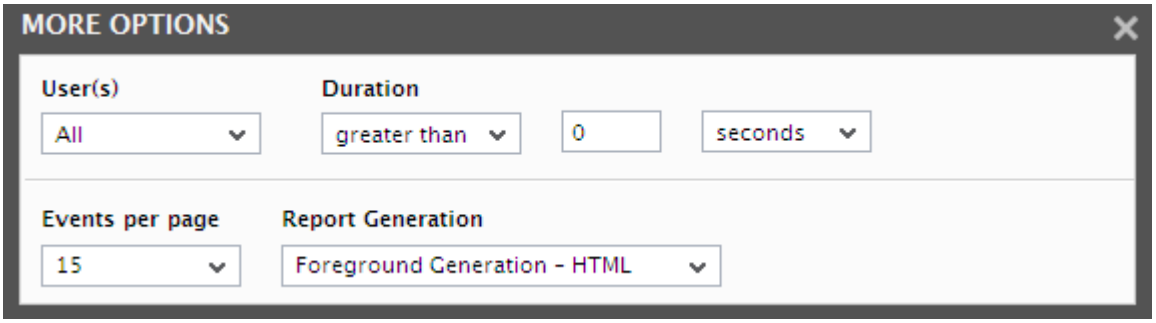


Figure 5.48: The default settings of the History of Unknowns report

8. If you wish to view the history of unknowns assigned to a chosen user in your environment, then select the user from the **User(s)** list. By default, **All** option will be chosen from this list indicating that the tests and measures in the Unknown state pertaining to all the users will be listed by default.

9. Next, to know which tests and measures reported for which component were in an **UNKNOWN** state for a time period that is in excess of a specified duration, select the **greater than** option from the **Duration** list, enter a value in the adjacent text box, and then select a unit of time from the list box alongside. For example, to view the tests and measures that have remained in the **UNKNOWN** state for over 1 hour, select the **greater than** option, enter 1 in the text box alongside, and select **hours** from the list box adjacent to it.

10. Similarly, you can view the tests and measures that were in an **UNKNOWN** state for a time period lesser than a specified duration. To achieve this, select the **lesser than** option from the **Duration** list, specify a value in the adjacent text box, and select a unit of time from the list box.

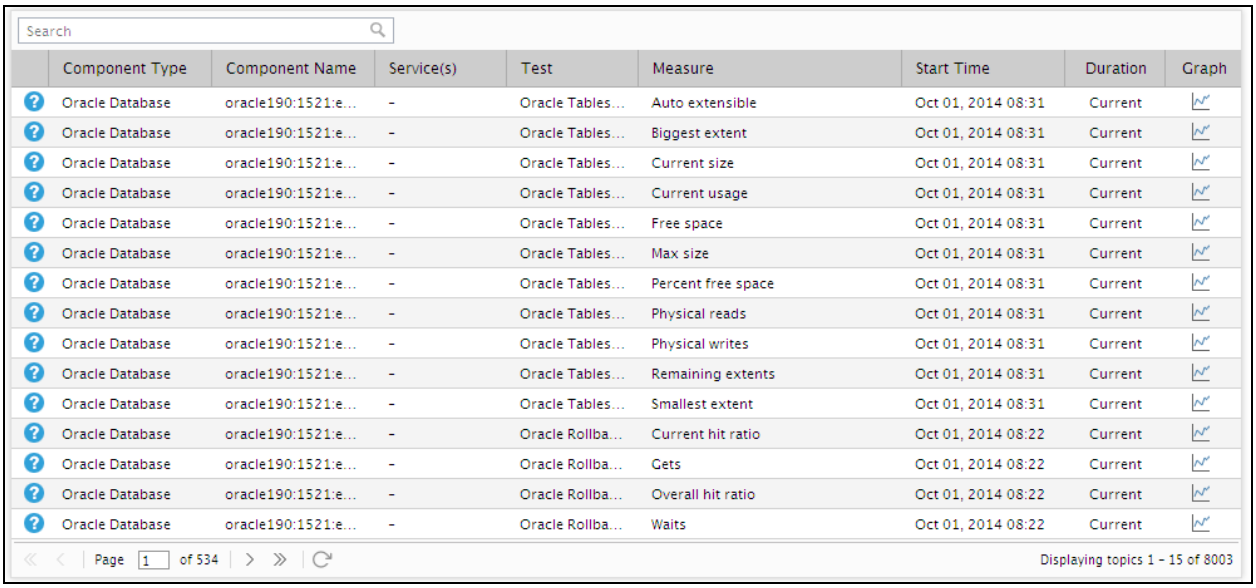
11. In addition, you can configure the number of **UNKNOWN** event records to be displayed per page of the **UNKNOWN**

history. By default, 15 records are displayed per page. To display more records, select an appropriate value from the **Events per page** list.

12. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

13. Finally, click the **RUN REPORT** button to generate the report. Figure 5.49 then appears.



Search

Component Type	Component Name	Service(s)	Test	Measure	Start Time	Duration	Graph
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Auto extensible	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Biggest extent	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Current size	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Current usage	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Free space	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Max size	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Percent free space	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Physical reads	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Physical writes	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Remaining extents	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Tables...	Smallest extent	Oct 01, 2014 08:31	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Rollba...	Current hit ratio	Oct 01, 2014 08:22	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Rollba...	Gets	Oct 01, 2014 08:22	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Rollba...	Overall hit ratio	Oct 01, 2014 08:22	Current	
Oracle Database	oracle190:1521:e...	-	Oracle Rollba...	Waits	Oct 01, 2014 08:22	Current	

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Figure 5.49: The HISTORY OF UNKNOWNS report

14. The **HISTORY OF UNKNOWNS** report also comprises of a **GRAPH** icon, which when clicked, allows you to view the graph of the corresponding measure for the last one hour.
15. You can even search for **UNKNOWN** information based on any of the following **Search** options from the report:
    - a particular **Component Name;**
    - a **Component Type**;
    - a **Service**;
    - a **Test**;
    - a **Measure**;

    Pick any of the aforesaid options and enter the component name/type/service/test/measure to search for in the text box provided alongside.
16. The **NEXT**, **PREVIOUS**, **LAST** and **FIRST** buttons, and the **Page** text box are provided to enable you to easily browse the **Unknown** information that runs across pages.

6

Consolidated Analysis Reports

The **CONSOLIDATED ANALYSIS** reports option that the eG Reporter includes provides a bird's eye view of infrastructure performance. While detailed graphs are ideal for analyzing performance of one server or application or device in detail, what IT operators of large infrastructures need to be able to see is a quick comparison of performance across the servers in their infrastructure.

The comparison should span multiple metrics so that the IT operators can get at a glance consolidated view of their infrastructure. The consolidated reports option addresses this requirement. Using this capability, IT operators can quickly determine if there are hot-spots in their infrastructure, whether the load balancing is working as expected, etc. Comparison of these reports over time can provide key indications regarding performance trends.

eG enterprise uses the grouping of servers as a **Zone** to define the scope of a consolidated report. Choosing the Zone option, allows a consolidated report to be defined comparing all the servers in the Zone. The Server option summarizes the performance of one of the components of the infrastructure.

While the **Server** reports enable assessment of individual server performance over time, the **Zone** report aids in analyzing the collective performance of the servers in a zone.

6.1 Server Performance Report

To simplify individual server monitoring, eG Enterprise offers the **Server Performance Report**, where the critical performance results of a particular server are aggregated over time and made available. Here, administrators can configure the measures that need to appear in the report and also compute specific values such as average, maximum, minimum etc., so that they are provided with more actionable information on server performance.

To view a **Server Performance report**, do the following:

1. Select the **Server Performance** option from the **Consolidated Analysis** node of the **REPORTS BY FUNCTION** tree.
2. Figure 6.1 will then appear. To monitor a specific server, select the **Server** from the list.

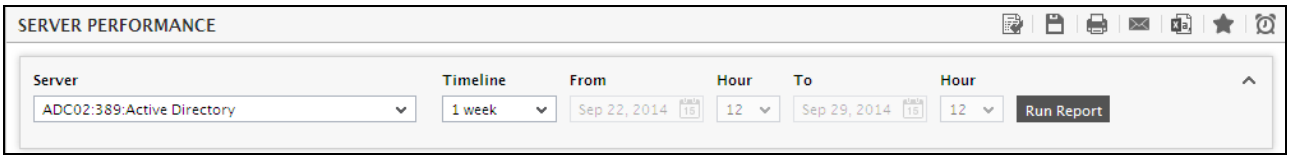


Figure 6.1: Generating a Consolidated Server Report

3. Specify the report Timeline. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

4. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after select a **Server**. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 6.2). The steps below discuss each of these settings and how they can be customized.

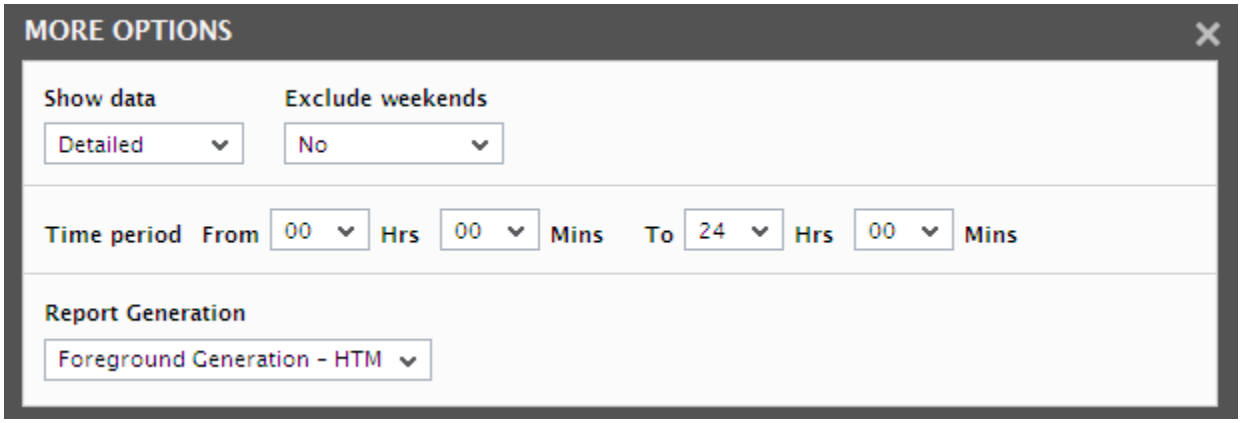


Figure 6.2: The default settings for generating a Server Performance report

5. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information base comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5

minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 6.2. By default, the **Detailed** option is selected in Figure 6.2 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

Note

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini** file.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **Run Report button** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

---

6. Specify the start time and end time for report generation in the **Time period** field.

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

7. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

You can configure the days of the week that need to be considered as a 'weekend' using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

8. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

9. Finally, click the **Run Report** button to generate the report. If the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 6.3.

10. Figure 6.3 provides user-configured details about the chosen server.

Server Report for ADC02:389: Active Directory

MEASURES (UNIT)	AVG	MAX	MIN	
CPU util (%)	2.9327	59.9445	0	
Free memory (MB)	6141.7101	6295.7031	5955.1055	
Scan rate (Pages/Sec)	1.2371	1696.8571	0	
Disk read time (Secs)	0.0001	0.0184	0	
Disk write time (Secs)	0.0005	0.0581	0	
Disk read rate (Reads/Sec)	0.8041	302.4657	0	
Disk write rate (Writes/Sec)	2.7697	106.4859	0	
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0006	0.0027	0.0004	
TCP port availability (%)	100	100	100	
TCP retransmit ratio (%)	0.0458	1.5142	0	
Num processes running (Number)	2	3	1	
Incoming traffic (Mbps)	0.2812	1.509	0.0746	
Outgoing traffic (Mbps)	0.7133	2.9196	0.1117	
Current connections (Number)	158	234	113	
Used space (MB)	32644.25	32668.4102	32630.9219	

Figure 6.3: The Server Performance Report

11. To view the graph (see Figure 6.4) pertaining to a configured measure, click on the corresponding icon in Figure 6.3.

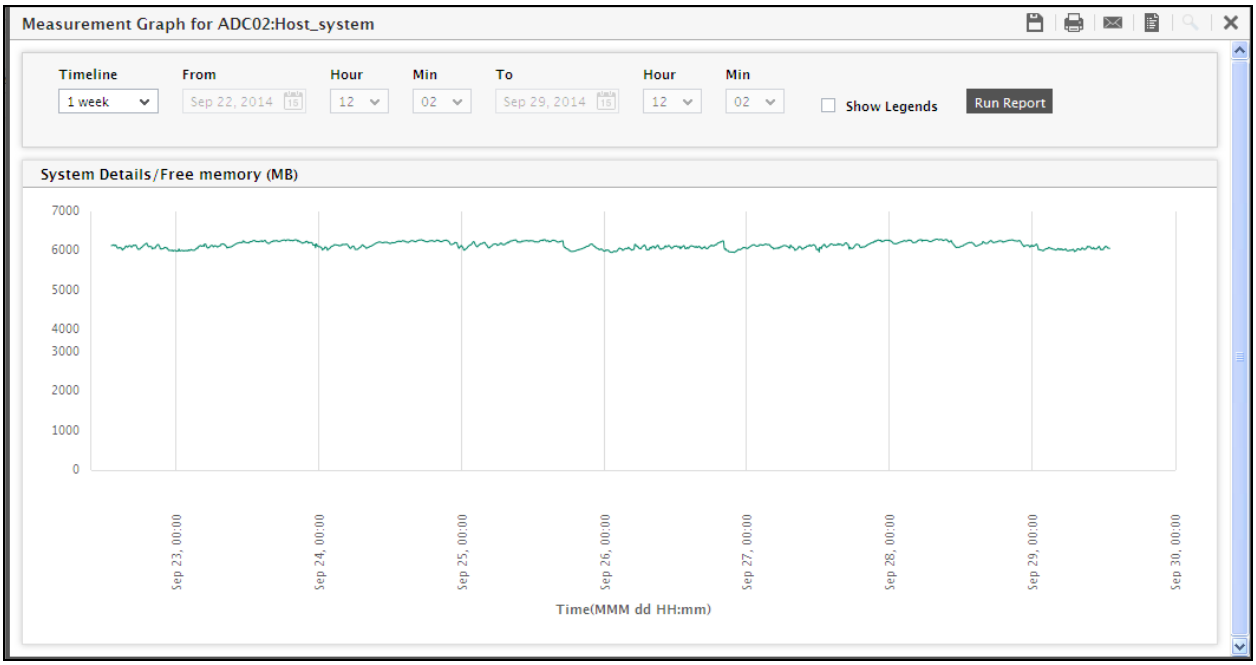


Figure 6.4: Graph of a measure in the Server report

12. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the **PDF** icon in that page.

13. If the **Server** chosen from Figure 6.3 is a virtual component such as a *VMware ESX server*, a *Citrix XenServer*, etc., then an additional **Show virtual machine** flag will appear as depicted by Figure 6.5.

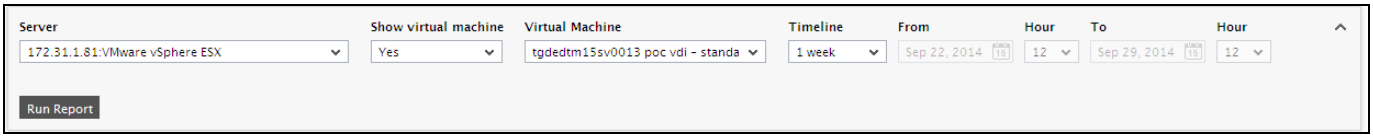


Figure 6.5: An additional 'Show virtual machine' flag appearing if the 'Server' chosen is a virtualized component

14. By default, the **Show virtual machines** flag is set to **No**, indicating that the resulting report reveals how the chosen virtual **Server** utilizes the resources available to it. If you want the server report to reveal the details of a particular VM on the chosen virtual **Server**, then set the **Show virtual machines** flag to **Yes**, and then select a VM from the **Virtual Machine** list that then appears. The resulting **Server** report will then reveal details pertaining to the resource usage by the chosen **Virtual Machine** and not the selected **Server**.

Virtual machine report for tgdedtm15sv0013 poc vdi - standard desktop on 172.31.1.81:VMware vSphere ESX

MEASURES (UNIT)	AVG	MAX	MIN	
CPU Used (%)	5.7398	100		
CPU Usage (Mhz)	298.9785	5946		
Ready Time (%)	0.2642	0.3625		
Configured Memory (MB)	8192	8192		
Active memory (MB)	918.1281	4505.5977		
Memory Usage (%)	11.1977	54.99		
Disk Capacity (MB)	20480	20480		
Disk Writes (MB/Sec)	0.0392	31.1855		
Disk Reads (MB/Sec)	0.0002	0.0127		
Network Traffic Out (Mbps)	0.017	1.9375		
Network Traffic In (Mbps)	0.4268	19.3281		

Figure 6.6: A Server Performance report for a virtual machine

15. The information that appears in the server report is configurable. To configure the details, you will have to access the consolidated measures page in the eG administrative interface. To access this page, do the following:

    - Select the **Consolidated Reports** option from the **Reporter** option of the **Settings** tile in the eG administrative interface.
    - In the **CONSOLIDATED REPORTS** page that appears, click on the **Configure metrics for specific component type** button.
    - The **CONSOLIDATED MEASURES** page then appears. To know how to configure measures for a **Server Performance** report using this page, refer to Section 3.4 of this manual.

6.2 Zone Performance Report

In order to simplify the management of large environments, eG Enterprise allows **Zone** definitions, where every **Zone** can typically comprise of individual components, segments, services, or even other zones. In large zones that consist of tens of thousands of servers, it is very difficult for administrators to focus on the performance of individual servers - a zone-wide overview of performance is hence desired. Therefore, to enable administrators to evaluate the performance of specific component-types that constitute the zone, the suite provides **Zone Performance Reports**. This report, by default, reveals the average performance of the component-type as a whole (e.g., all Oracle databases), and also the average performance of the individual components of the chosen type. Besides indicating the health of the component-type, this report enables administrators to instantly identify the component(s) that serves as the root-cause of the problems (if any) with the type. Moreover, the metrics to be displayed in the report and the functions to be executed on them, are configurable. Administrators thus have the flexibility to configure the critical performance areas alone for monitoring.

To generate a **Zone Performance Report**, do the following:

1. Select the **Zone Performance** option from the **Consolidated Analysis** node of the **REPORTS BY FUNCTION** tree.
2. Figure 6.7 will then appear. To monitor a particular type of component that belongs to a zone, select the **Zone** to which the components of that type have been added.

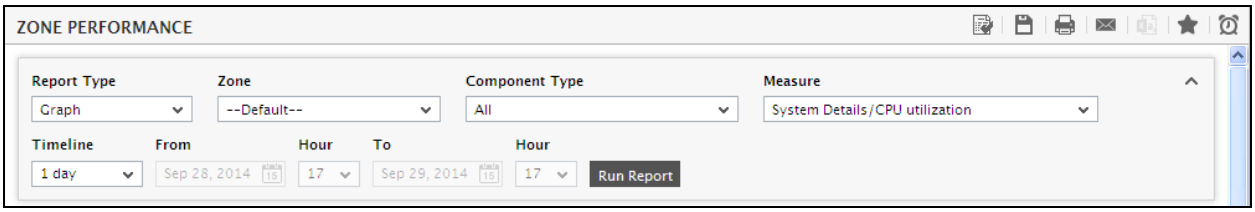


Figure 6.7: Generating a Consolidated Zone Report

If no zones pre-exist, then you can use the **Default** zone that is automatically created by eG Enterprise. This zone includes all the independent components in the environment.

3. All the component-types that have been added to the chosen zone will then be listed in the **Component Type** list. For a report on a particular component-type, select the type from the list. To generate a report for all component-types, pick the **All** option.
4. Next, choose a **Report Type** (**Graph** or **Data**). The default **Report Type** is **Graph**. To closely observe and clearly understand the behavior of a single performance parameter across a component-type, you can plot a single measure's data alone in a **Graph** report.
5. If the **Report Type** is **Graph**, a **Measure** list box will appear, containing the complete list of measures that you have configured for the report. From this list, pick the Measure for which a graph is to be generated (see Figure 6.7).
6. Then, select the period (**Timeline**) for which the graph is to be generated. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Measure** (in case of a **Graph** report). However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 6.8). The steps below discuss each of these settings and how they can be customized.

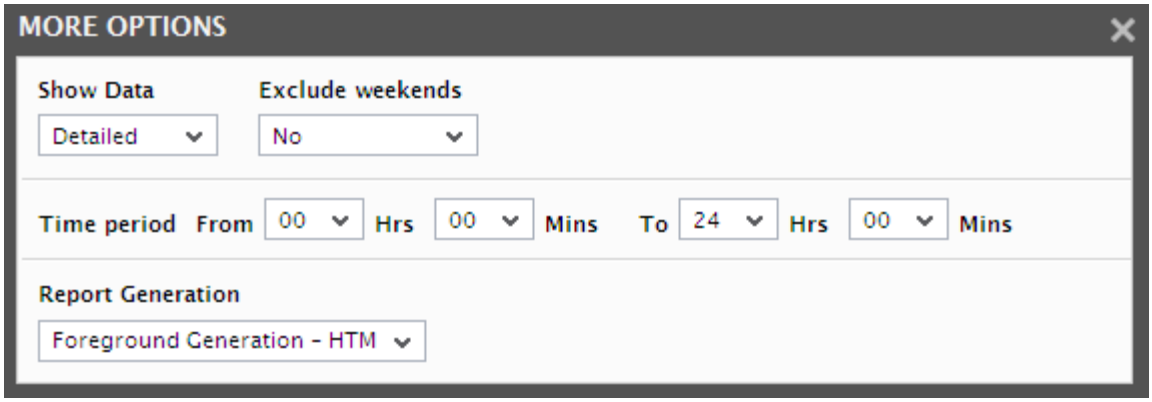


Figure 6.8: The default settings for generating the Zone Performance report

8. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information base comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of

records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 6.8. By default, the **Detailed** option is selected in Figure 6.8 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini** file.
  - For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **Run Report button** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
  - To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

---

9. Next, specify the start time and end time for report generation against the **Time period** field.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

10. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

You can configure the days of the week that need to be considered as a 'weekend' using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

11. Besides a pie chart, the report of type **Graph** will also invoke a comparative bar graph. This bar graph will, by default, reveal the top - 10 components (of a particular type or across all types) in the selected **Zone** in terms of the **Measure** chosen. This is why, the **Show** list is set to **Top-10** by default. You can however view any number of top/bottom players in a particular performance area by picking any **TOP** or **LAST** option from the **Show** list.

By default, the values displayed in the **Show** list range from **TOP-10** to **LAST-10**. This is because, the **Showtop** parameter in the **[INFOS]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory) is set to 10, by default. You can, if required, configure the **Show** list to display a different range of options. For this, specify a different number against the **Showtop** parameter, and save the **eg_report.ini** file.

12. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

13. Finally, click on the **RUN REPORT BUTTON** to generate the report.
14. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 6.9, which will reveal the following:
    - A distribution pie chart that reveals the number of components in different distribution ranges (see Figure 6.9). The distribution ranges are obtained based on the first of the configured functions for the chosen **Measure**. For instance, assume that *CPU utilization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of *CPU utilization* in the zone performance report. Typically, both these configured values will appear only in a **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *CPU utilization* - alone is calculated for every component of the chosen component-type. The resulting pie chart enables administrators to deduce at a single glance, the number of components in which CPU utilization has been highest. Clicking on a particular slice in the pie chart lists

the components that fall within the value range represented by that slice (see Figure 6.10). Against every component name, the actual values for each of the configured functions (both *Avg* and *Max*, in our example), and also the **Health %** of each of the components will be displayed. A zone-level **Summary** of the chosen **Measure** and the **Normal %** will also be available.

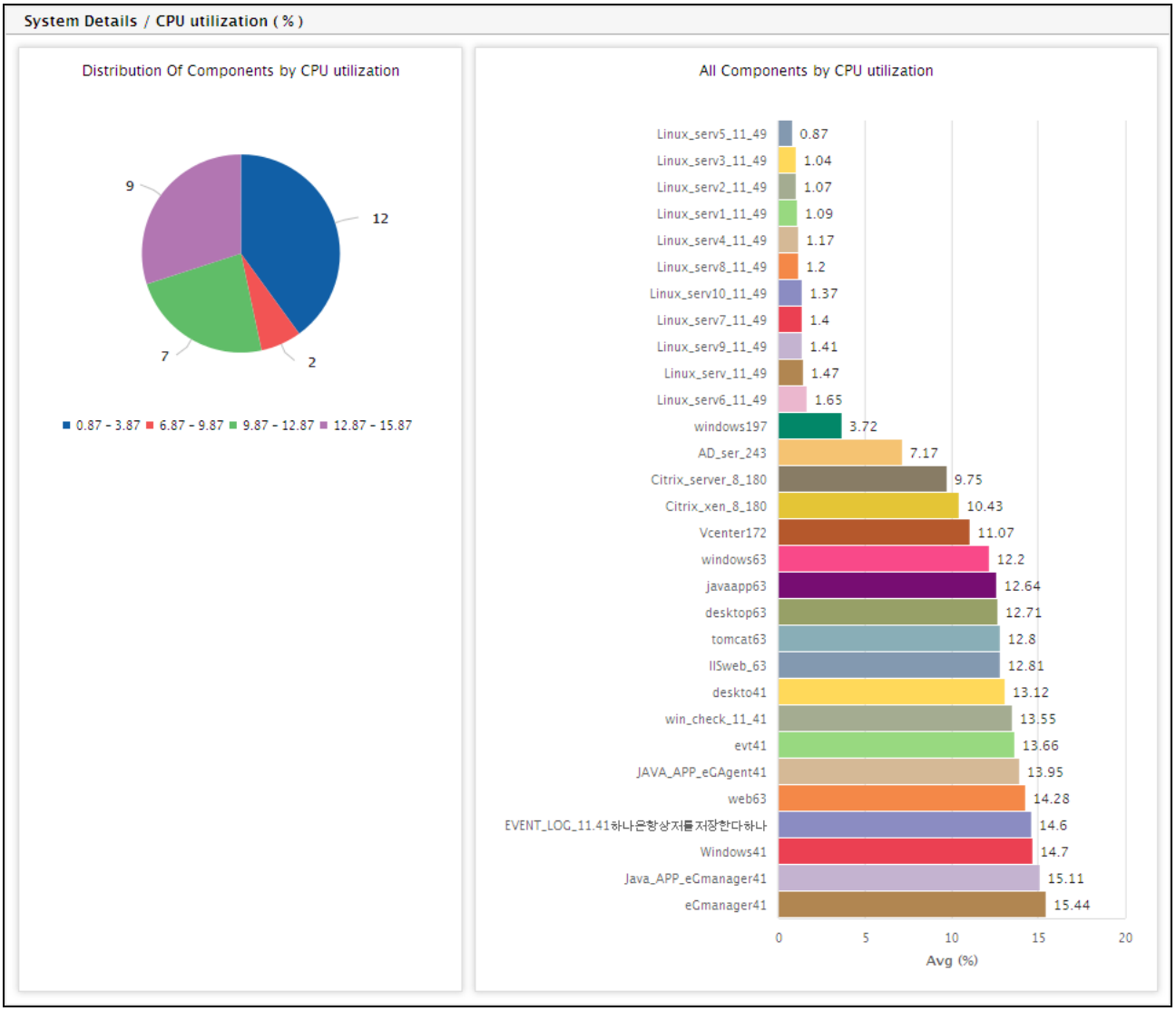


Figure 6.9: A graphical Zone Performance report

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
    - Change the value of the **chartTypeForDist** parameter in the **[ZONE_REPORT]** section of this file from the default **Pie**, to **Bar**.
  - Save the **eg_report.ini** file.

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Specify a number of your choice against the **nofRangeForDist** parameter in the **[ZONE_REPORT]** section of this file. By default, this parameter will hold the value 10.
  - Save the **eg_report.ini** file.

Zone Performance

Consolidated Data for --Default--

Measure : System Details/CPU utilization Start Date: Sep 28, 2014 17:45 End Date: Sep 29, 2014 17:45

Zone report - --Default-- : Citrix XenApp				
Range	Server	CPU util		Health %
		Avg	Max	
9.87-12.87	Citrix_xen_8_180:1494	10.43	71.14	0.0
Zone report - --Default-- : Client Desktop				
Range	Server	CPU util		Health %
		Avg	Max	
9.87-12.87	desktop63	12.4	42.96	99.45
Zone report - --Default-- : IIS Web				
Range	Server	CPU util		Health %
		Avg	Max	
9.87-12.87	IISweb_63:80	12.5	74.03	0.0
Zone report - --Default-- : Java Application				
Range	Server	CPU util		Health %
		Avg	Max	
9.87-12.87	javaapp63:8080	12.33	74.03	0.0
Zone report - --Default-- : Tomcat				
Range	Server	CPU util		Health %
		Avg	Max	
9.87-12.87	tomcat63:8080	12.5	74.03	0.0
Zone report - --Default-- : VMware vCenter				
Range	Server	CPU util		Health %
		Avg	Max	
9.87-12.87	Vcenter172	11.07	53.08	1.0
Zone report - --Default-- : Windows				
Range	Server	CPU util		Health %
		Avg	Max	
9.87-12.87	windows63	11.89	45.38	0.0

Figure 6.10: A list of components with *CPU utilization in* a given range

- Below the pie chart, you will find a bar chart that indicates the components that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *CPU utilization* measure, this bar chart reveals the components that are the top CPU-consumers. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**. Clicking on the bar corresponding to a server name results in a **Server Report** (see Figure 6.11) that enables you to focus on the performance of that server.

Server Report for windows63:Windows

MEASURES (UNIT)	AVG	MAX	MIN	
CPU util (%)	11.8091	45.385	0.0006	
Free memory (MB)	881.0246	1133.1563	730.582	
Scan rate (Pages/sec)	92.1485	4688.184	0	
Disk read time (Secs)	0.0002	0.0142	0	
Disk write time (Secs)	0.0005	0.0074	0	
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0013	0.0018	0.0006	
TCP retransmit ratio (%)	0.0476	0.1968	0.0274	
Num processes running (Number)	2	2	2	
Incoming traffic (Mbps)	0.0939	0.378	0.0314	
Outgoing traffic (Mbps)	0.0566	0.0985	0.0233	
Current connections (Number)	12	21	2	
Used space (MB)	28460.4687	36790.6094	19778.5117	

Figure 6.11: The server report that appears upon clicking on a bar chart

- The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Specify a number of your choice against the **NoOfServersforChart** parameter in the **[ZONE_REPORT]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear.
  - Finally, save the **eg_report.ini** file.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[ZONE_REPORT]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[ZONE_REPORT]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You can override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

15. Unlike a **Graph** report, a **Data** report does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report.

16. If the **Report Type** chosen is **Data** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke two tables providing the user- configured details (see Figure 6.12) for the chosen component-type. By default, the **Summary** section of the report will display the average values of each of the configured measures across the farm. In the section providing per-server information though, eG Enterprise will display multiple values for a measure depending upon the number and type of functions that have been configured for the measure. For example, in Figure 6.12, note that the second section displays both the *Avg* and *Max* values for the *Cpu util* measure, but only the *Avg* value for the *Disk busy* measure.

Report Type: **Data** Component Type: **Windows** Measure: **Disk Activity/Disk busy** Show Data: **Detailed** Exclude weekends: **No**

Time Period: **00:00 to 24:00** Timeline: **Sep 28, 2014 18:28 hrs to Sep 29, 2014 18:28 hrs**

Zone report - --Default-- : Windows

Server	CPU Util		Free Memory		Disk Busy	Network Availability	Tcp Connections	Health
	Avg	Max	Avg	Max	Avg	Avg	Avg	
Summary	**10.89**	-	**2256.5**	-	**3.42**	**74.49**	**26.5**	**14.43**
192.168.9.10	-	-	-	-	-	100	-	0.76
win_check_11_41	13.61	68.59	3727	5207.6	4.28	100	43	0.34
windows104	-	-	-	-	-	21.43	-	0.0
windows170	-	-	-	-	-	0	-	0.0
windows197	3.72	77.46	701.13	1142.3	3.52	100	10	99.51
Windows41	14.53	68.59	3717.7	5339.8	4.49	100	41	0.38
windows63	11.69	43.46	880.16	1133.2	1.41	100	12	0.0

Figure 6.12: The Zone Data Report

17. Besides the above-mentioned details, the **Data** report also contains a **Health %** column (see Figure 6.12). This

column indicates the percentage of time a particular server has been in the Normal state during the chosen timeline. If a server has remained the constant victim of problems during the specified time period, then this percentage will obviously be low. To drill down to the root-cause of the issues affecting the server, click on the corresponding **Health %** value. This will lead you to the Executive report of the problem server, which will reveal when and what type of problems were encountered by the server (see Figure 6.13).

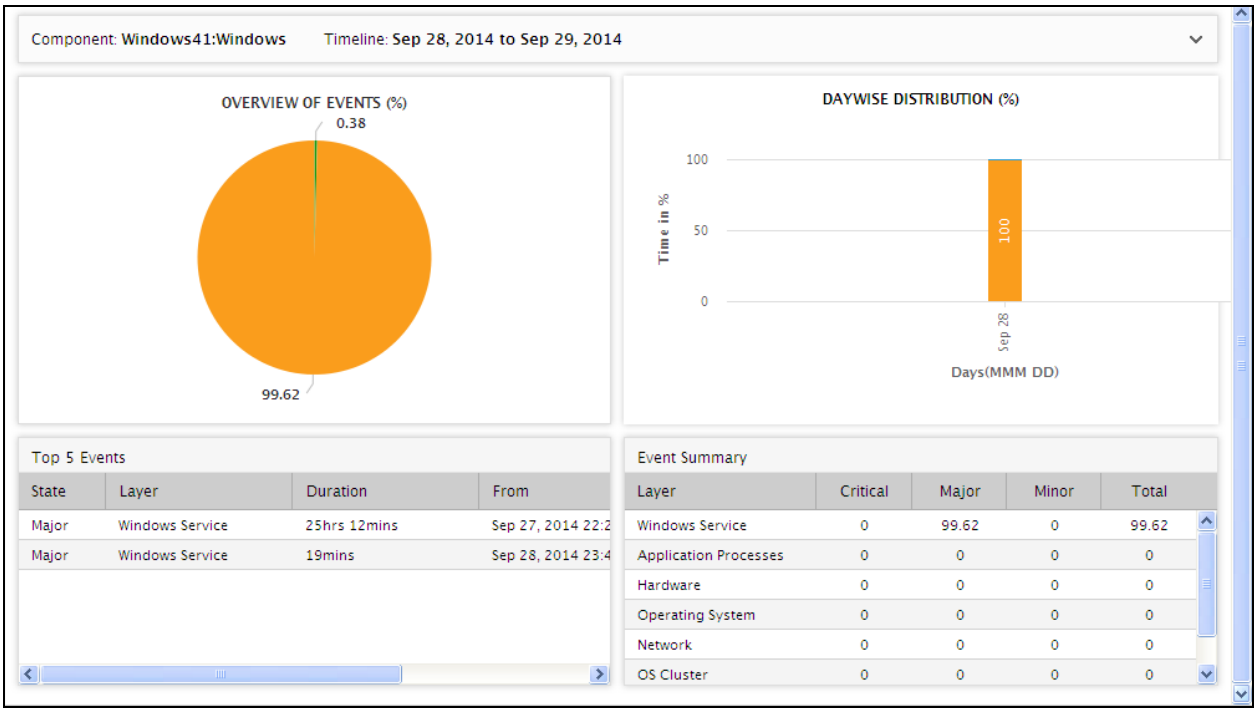
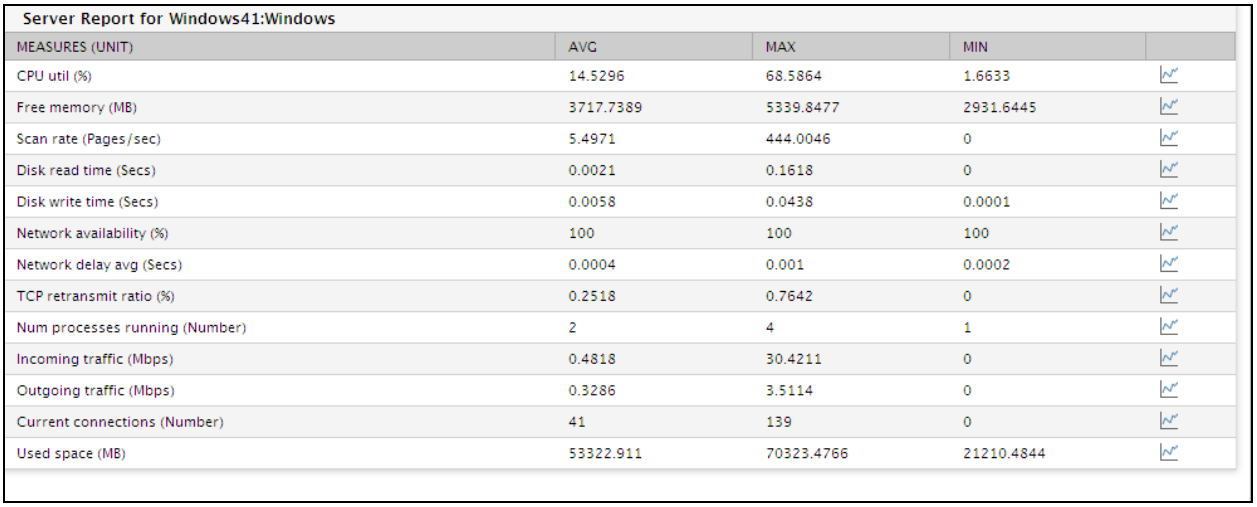


Figure 6.13: The Executive report of the problem server in the zone performance report

18. Also, to focus on the health of a particular server displayed in the Data report, click on the corresponding Server name in Figure 6.12. The Server Report will then appear (see Figure 6.14).



Server Report for Windows41:Windows

MEASURES (UNIT)	AVG	MAX	MIN	
CPU util (%)	14.5296	68.5864	1.6633	
Free memory (MB)	3717.7389	5339.8477	2931.6445	
Scan rate (Pages/sec)	5.4971	444.0046	0	
Disk read time (Secs)	0.0021	0.1618	0	
Disk write time (Secs)	0.0058	0.0438	0.0001	
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0004	0.001	0.0002	
TCP retransmit ratio (%)	0.2518	0.7642	0	
Num processes running (Number)	2	4	1	
Incoming traffic (Mbps)	0.4818	30.4211	0	
Outgoing traffic (Mbps)	0.3286	3.5114	0	
Current connections (Number)	41	139	0	
Used space (MB)	53322.911	70323.4766	21210.4844	

Figure 6.14: The server report that appears when a server in the Consolidated Zone Data Report is clicked

19. As stated earlier, you can configure the information that needs to appear in the zone report. To achieve this,

you will have to access the consolidated measures page in the eG administrative interface. To access this page, do the following:

- Select the **Consolidated Reports** option from the **Reporter** option of the **Settings** tile in the eG administrative interface.
- In the **CONSOLIDATED REPORTS** page that appears, click on the **Configure metrics for specific component type** button.
- The **CONSOLIDATED MEASURES** page then appears. To know how to configure measures for a **Server Performance** report using this page, refer to Section 3.4 of this manual.

6.3 Services Report

A zone report provides a quick overview of the performance of all the components in a specific geography, domain, or server group. While this report is ideal for administrators and operations staff who are responsible for the zone, there may be other administrators who are only interested in the performance of specific business services. These administrators need reports that are specific to the business services that they are responsible for, and the components involved in supporting these services. Services Reports included in the eG Reporter address this need.

There are three sets of reports in the eG Service report category. Let us now discuss each of the reports in detail in the forthcoming sections.

6.3.1 Services Health Report

Irrespective of whether a service is a web site or not, a user may want to view the resource usage (e.g., CPU, memory, disk utilization) and other key metrics about all the servers that support a specific service. The Services Health report addresses this requirement. From this report, a user only sees all the components that are specific to a chosen service, and can review performance metrics across all these components to identify any bottlenecks in the infrastructure.

Figure 6.15 shows a Services Health report.

Assume a case, where the users accessing a specific service experience slow responsiveness and increase in number of failed web transactions. In order to find out how well the service is performing, you need to have the reports that will highlight the resource utilization and other key metrics about the servers that support this service.

In order to generate this report, do the following:

1. Select the **Services Health** option from the **Consolidated Analysis** node of the **REPORTS BY FUNCTION** tree.

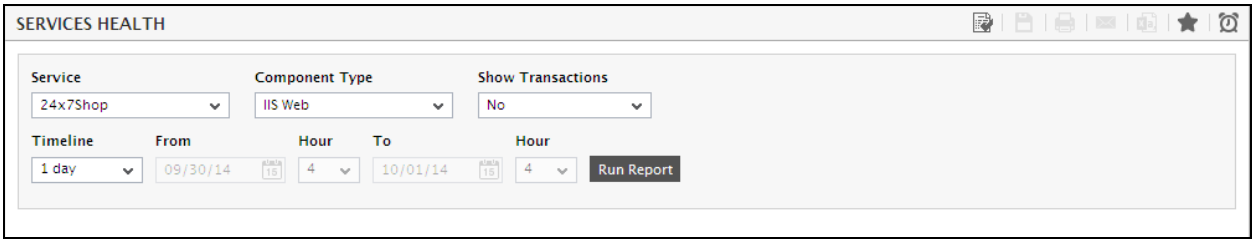


Figure 6.15: Generating the Services Health report

2. Select the Service for which the report is to be generated from Figure 6.15.
3. Upon selecting the **Service** to be monitored, select the **Component Type**. All the component types associated with the selected service will be made available for you to choose from. For our example, we will select the IIS web server component-type in the service and review its performance across the service.

4. Next, indicate whether the report should **Show Transactions** or not. The **Show Transactions** flag appears only if the **Service** chosen is a web site service. If the **Show Transactions** flag is switched on, then the resulting **Services Health** report will also provide insights into the performance of the transactions to the selected web site. On the other hand, switching off the **Show Transactions** flag will result in a report that provides useful information on general web site and web server performance, and no information that is transaction-specific.

5. Specify a **Timeline** for the report.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Component Type**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS drop down window** (see Figure 6.16). The steps below discuss each of these settings and how they can be customized.

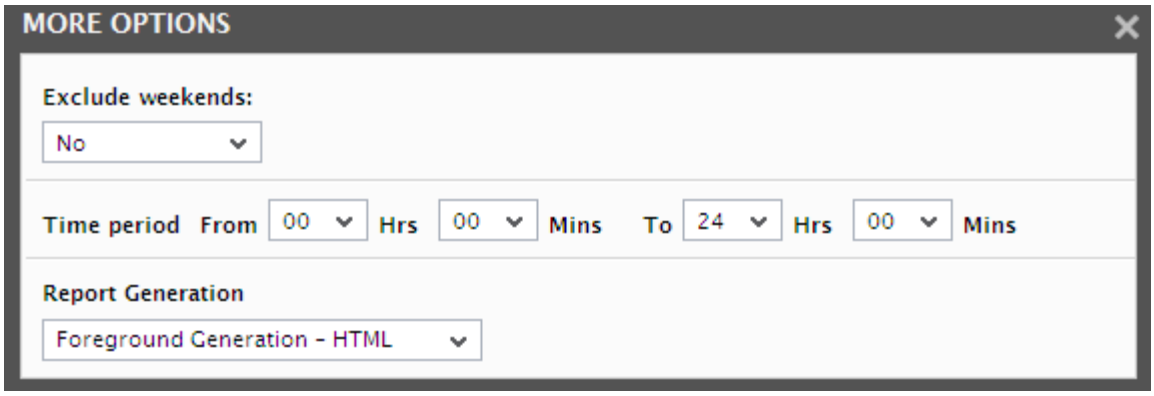


Figure 6.16: The default settings for generating the Services health report

7. Specify the start time and end time for report generation against the **Time period** field (see Figure 6.16).

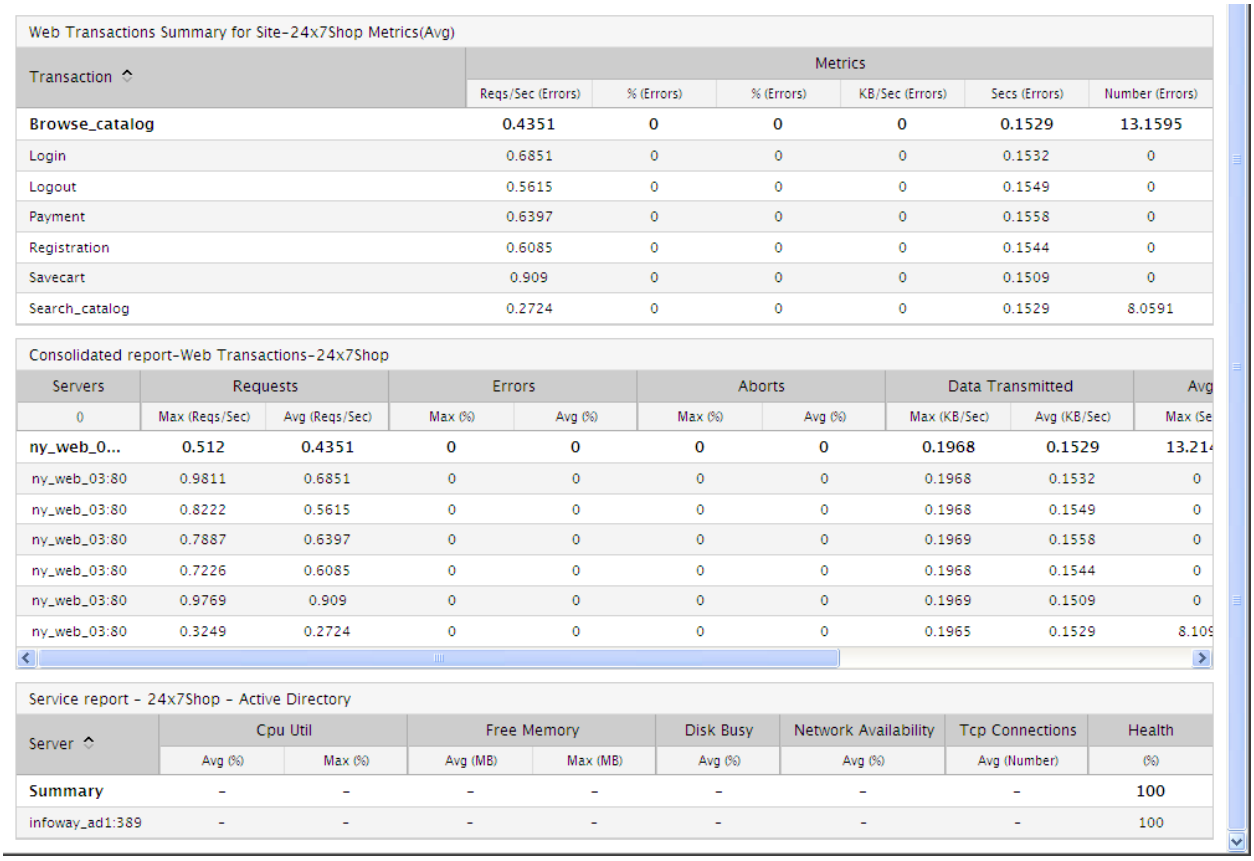
8. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

The **Weekend** settings for a **Consolidated Zone** report will apply to this report too.

9. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

10. Finally, click the **Run Report** button to generate the report.
11. Figure 6.17 depicts the **Services Health** report for the IIS web servers involved in the delivery of a web site service. Since the **Show Transactions** flag has been enabled in our example, you can see that a site-level and individual web server-level summary on transaction health is included in the report. By default, all transaction-related metrics such as *Request_rate*, *Pct_errors*, *Pct_aborts*, etc., appear in these sections. Below the transaction-centric sections, you will find two more sections, the first of which summarizes the overall health of the chosen **Component Type**, and the second providing valuable information on the performance of each component of that type. In our example, we have shown the overall Health% of an Active Directory Server, which stands at 100%.



Web Transactions Summary for Site-24x7Shop Metrics(Avg)

Transaction	Metrics					
	Reqs/Sec (Errors)	% (Errors)	% (Errors)	KB/Sec (Errors)	Secs (Errors)	Number (Errors)
Browse_catalog	**0.4351**	**0**	**0**	**0**	**0.1529**	**13.1595**
Login	0.6851	0	0	0	0.1532	0
Logout	0.5615	0	0	0	0.1549	0
Payment	0.6397	0	0	0	0.1558	0
Registration	0.6085	0	0	0	0.1544	0
Savecart	0.909	0	0	0	0.1509	0
Search_catalog	0.2724	0	0	0	0.1529	8.0591

Consolidated report-Web Transactions-24x7Shop

Servers	Requests		Errors		Aborts		Data Transmitted		Avg
()	Max (Reqs/Sec)	Avg (Reqs/Sec)	Max (%)	Avg (%)	Max (%)	Avg (%)	Max (KB/Sec)	Avg (KB/Sec)	Max (Se
ny_web_0...	**0.512**	**0.4351**	**0**	**0**	**0**	**0**	**0.1968**	**0.1529**	**13.21**
ny_web_03:80	0.9811	0.6851	0	0	0	0	0.1968	0.1532	0
ny_web_03:80	0.8222	0.5615	0	0	0	0	0.1968	0.1549	0
ny_web_03:80	0.7887	0.6397	0	0	0	0	0.1969	0.1558	0
ny_web_03:80	0.7226	0.6085	0	0	0	0	0.1968	0.1544	0
ny_web_03:80	0.9769	0.909	0	0	0	0	0.1969	0.1509	0
ny_web_03:80	0.3249	0.2724	0	0	0	0	0.1965	0.1529	8.109

Service report - 24x7Shop - Active Directory

Server	Cpu Util		Free Memory		Disk Busy	Network Availability	Tcp Connections	Health
	Avg (%)	Max (%)	Avg (MB)	Max (MB)	Avg (%)	Avg (%)	Avg (Number)	(%)
Summary	-	-	-	-	-	-	-	**100**
infoway_ad1:389	-	-	-	-	-	-	-	100

Figure 6.17: The Service Health report with 'Show Transactions' on

As stated earlier, by default, all transaction-related metrics find a place in the transaction-specific sections of Figure 6.17. As for the remaining sections, the following measure configurations apply:

- Default measure configurations for the **Consolidated Zone Report**
- Configurations specific to the chosen **Component Type** for the **Consolidated Zone Report**
- A default set of measures pre-configured for the **Services** report in the **[SERVICES_REPORT]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory); these default measures are *Request rate, Pct errors, Data transmission rate,* and *Data received rate*. You can, if you so desire, add more default measures to the **[SERVICES_REPORT]** section in the format: *Default:<InternalTest>:<InternalMeasure>#<DisplayName>=<Comma-separated list of functions>*. To determine the internal test and measure names, use the procedure explained in Page 212 of this manual.

Note

For instance, if you want the report to display the number of current requests handled by a web site, then your specification would be:

Default:WebSiteTest:Num_current_requests#Num_current_requests (Num)=Avg,Max

- Similarly, you can also remove one/more default measures or modify them.

12. If the **Show Transactions** flag had been disabled, then the web transaction related measures will not be available in the report (see Figure 6.18).

Summary for Service - Apache2.0_50

Metrics (Avg)	Summary
Cpu util %	13.69
Free memory (MB)	147.49
Disk busy %	2.61
Network availability %	99.68
Tcp connections (Num)	2.54
Request rate (Req/s)	0.10
Errors %	3.05
Web availability %	98.06
Web response (Secs)	0.21
Request Rate (Reqs/Sec)	0.10
Data xmit Rate (KB/Sec)	0.02
Data Received Rate (KB/Sec)	0.00
Pct Errors(%)	3.03
Component Health - Normal %	2.63

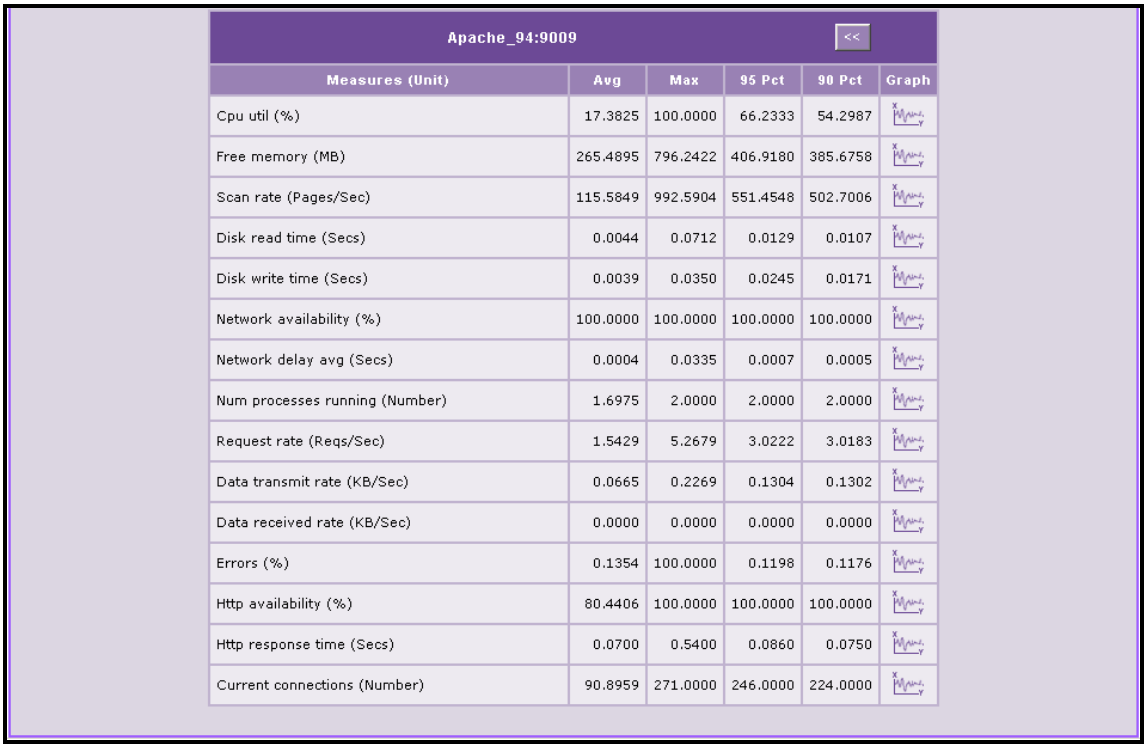
Service report - Apache2.0_50 - Web_server

Server	Cpu util %		Free memory (MB)		Disk busy %		Network availability %		Tcp connections (Num)		Request rate (Req/s)	Errors %	Web availability %	Web response (Secs)	Request Rate (Reqs/Sec)		Da (K
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Avg	Avg	Avg	Avg	Max	Av
Apache2.0_50:9000	13.69	100.0	147.49	275.89	2.61	96.63	99.68	100.0	2.54	21.0	0.1	3.05	98.06	0.21	0.1	3.12	0.0

Figure 6.18: The ServicesHealth report without the Show Transactions flag

13. In order to zoom into the performance of a particular component of the chosen type, click on the **Server** link in

the second section of Figure 6.17. A Server Report shedding light on the performance of the Apache web server in our example then appears (see Figure 6.19).



Apache_94:9009 <<

Measures (Unit)	Avg	Max	95 Pct	90 Pct	Graph
Cpu util (%)	17.3825	100.0000	66.2333	54.2987	
Free memory (MB)	265.4895	796.2422	406.9180	385.6758	
Scan rate (Pages/Sec)	115.5849	992.5904	551.4548	502.7006	
Disk read time (Secs)	0.0044	0.0712	0.0129	0.0107	
Disk write time (Secs)	0.0039	0.0350	0.0245	0.0171	
Network availability (%)	100.0000	100.0000	100.0000	100.0000	
Network delay avg (Secs)	0.0004	0.0335	0.0007	0.0005	
Num processes running (Number)	1.6975	2.0000	2.0000	2.0000	
Request rate (Reqs/Sec)	1.5429	5.2679	3.0222	3.0183	
Data transmit rate (KB/Sec)	0.0665	0.2269	0.1304	0.1302	
Data received rate (KB/Sec)	0.0000	0.0000	0.0000	0.0000	
Errors (%)	0.1354	100.0000	0.1198	0.1176	
Http availability (%)	80.4406	100.0000	100.0000	100.0000	
Http response time (Secs)	0.0700	0.5400	0.0860	0.0750	
Current connections (Number)	90.8959	271.0000	246.0000	224.0000	

Figure 6.19: The individual component's performance for the IIS webserver

14. To look into the anomalies that have affected the service, click on **Health%** link to display the Executive Report. This report reveals when and what types of problems were impacting the service performance during the specified **Timeline** (see Figure 6.20).

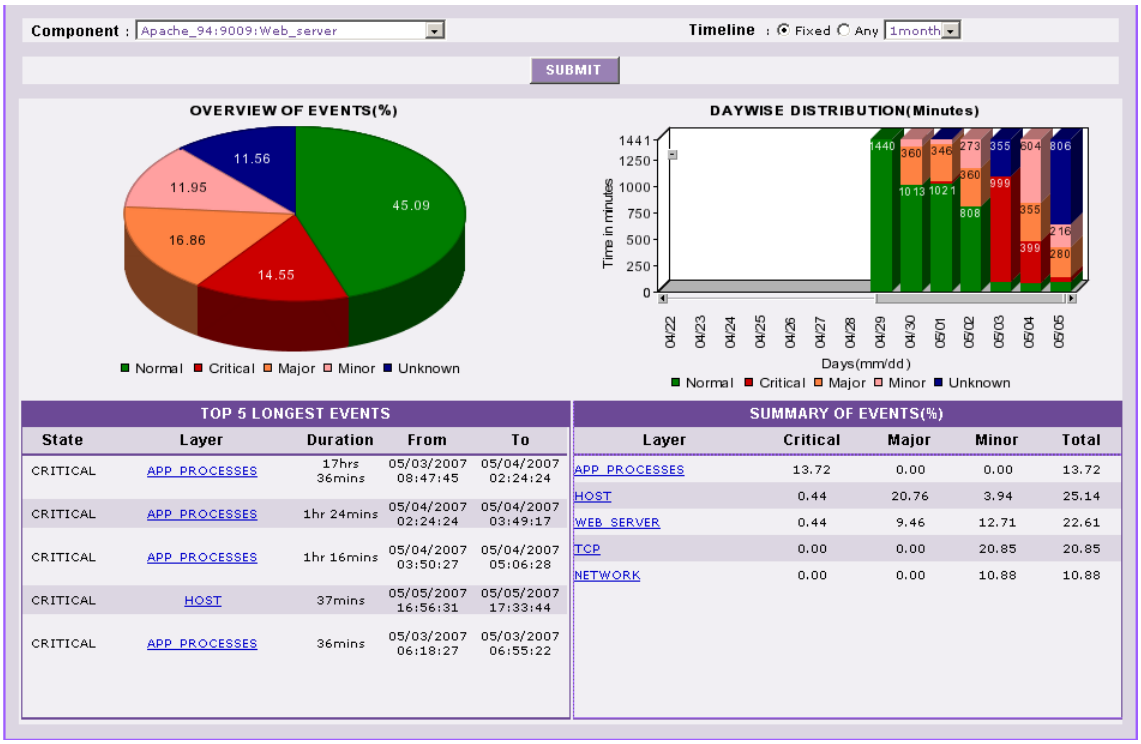

Component : Apache_94:9009:Web_server
Timeline : Fixed Any 1month
SUBMIT
OVERVIEW OF EVENTS(%)
11.56
11.95
45.09
16.86
14.55
Normal Critical Major Minor Unknown
DAYWISE DISTRIBUTION(Minutes)
Time in minutes
Days(mm/dd)
Normal Critical Major Minor Unknown
TOP 5 LONGEST EVENTS
State Layer Duration From To
CRITICAL APP_PROCESSES 17hrs 36mins 05/03/2007 08:47:45 05/04/2007 02:24:24
CRITICAL APP_PROCESSES 1hr 24mins 05/04/2007 02:24:24 05/04/2007 03:49:17
CRITICAL APP_PROCESSES 1hr 16mins 05/04/2007 03:50:27 05/04/2007 05:06:28
CRITICAL HOST 37mins 05/05/2007 16:56:31 05/05/2007 17:33:44
CRITICAL APP_PROCESSES 36mins 05/03/2007 06:18:27 05/03/2007 06:55:22
SUMMARY OF EVENTS(%)
Layer Critical Major Minor Total
APP_PROCESSES 13.72 0.00 0.00 13.72
HOST 0.44 20.76 3.94 25.14
WEB_SERVER 0.44 9.46 12.71 22.61
TCP 0.00 0.00 20.85 20.85
NETWORK 0.00 0.00 10.88 10.88

Figure 6.20: Shows the event analysis for the IIS web server

15. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report button** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the **PDF** icon in that page.

6.3.2 Web Transaction Analysis Report

The Web Transaction Analysis report is specific to web sites. This report provides a summary of the performance of key web transaction metrics reported by eG agents for each web site. A web site may include multiple web servers, with load balancing being used to distribute the requests across the web servers. For a specific time period (say 2 weeks), a user can use the Web Transaction Analysis report to view web transaction metrics across each of the web servers used for a web site. Using this report, a user can determine the following:

- Is the transaction load being balanced across all the web servers supporting the web site?
- Are any unusual error patterns seen on specific web servers (e.g., because some content is not available on one of the servers)?
- Is there any unusual slowness observed on specific web servers?

Figure 6.21 shows a WebTransactions Analysis report for a web site.

In order to generate this report, do the following:

1. Select the **Web Transaction Analysis** option from the **Consolidated Analysis** node of the **REPORTS BY FUNCTION** tree.

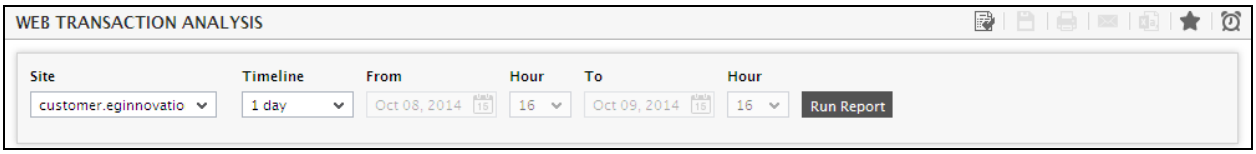


Figure 6.21: Generating the Web transaction Analysis report

2. Select the **Site** for which the report is to be generated from Figure 6.21.
3. Specify a **Timeline** for the report.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

4. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Site**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 6.22). The steps below discuss each of these settings and how they can be customized.

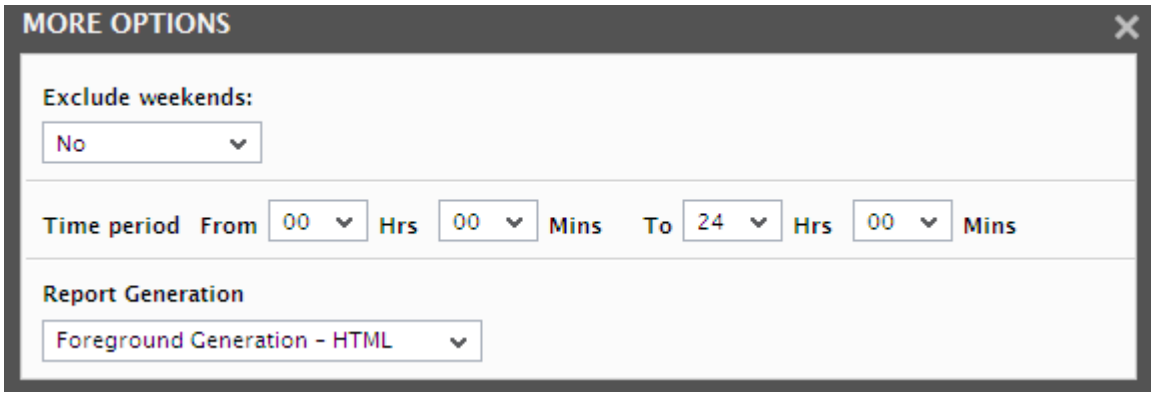


Figure 6.22: The default settings for generating the Web Transaction Analysis report

5. Specify the start time and end time for report generation against the **Time period** field (see Figure 6.22).
6. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

The **Weekend** settings for a **Zone Performance** report will apply to this report too.

7. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

8. Finally, click the **Run Report** button to generate the report.
9. Figure 6.23 reveals the transaction-related metrics for the chosen Website.

Web Transactions Summary for Site-customer.eginnovations.com Metrics(Avg)111

Transaction	Metrics					
	Requests (Reqs/Sec)	Errors (%)	Aborts (%)	Data Transmitted (KB/Sec)	Avg Response Time (Secs)	Current Requests (Number)
add	0.0003	0.3509	0.3509	0	0	0.0002
customer	0.0002	0	0	0	0.0002	0
generateLicense	0	0	0	0	0	0.0001
homepage	0.0034	0	0	0	0.009	0.0004
licenseViewAction	0.0001	0	0	0	0.0001	0
list	0.0004	0	0	0	0.0002	0

Consolidated report-Web Transactions-customer.eginnovations.com111

Transactions	Servers	Requests (Reqs/Sec)		Errors (%)		Aborts (%)	
		Max	Avg	Max	Avg	Max	Avg
add	customer.eginn...	0.0134	0.0003	100	0.3509	0	0
customer	customer.eginn...	0.0219	0.0002	0	0	0	0
generateLicense	customer.eginn...	0.0065	0	0	0	0	0
homepage	customer.eginn...	0.0072	0.0034	0	0	0	0
licenseViewActi...	customer.eginn...	0.0093	0.0001	0	0	0	0
list	customer.eginn...	0.0186	0.0004	0	0	0	0

Figure 6.23: The performance of the website hosted by a Web server

All the metrics displayed in a **WebTransaction Analysis** report are pre-configured, and cannot be altered.

10. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report button** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the

icon in that page.

6.3.3 IIS Transaction Analysis Report

Whenever users to your mission-critical web sites (on an IIS web server) or web services (overlying an IIS web server) complaint of slowdowns, the first step to troubleshooting these issues is identifying which specific transaction(s) to the web sites is causing the slowdown. For this, you will have to periodically monitor the responsiveness of key transactions to your web sites, so as to quickly and accurately identify slow transactions. Also, by keenly observing the variations in the responsiveness of transactions over time, you can ascertain how often a transaction experienced slowdowns in a given timeline, determine whether that transaction is prone to delays, and investigate the root-cause of the same. To provide you with such in-depth historical insights into a transaction's performance, eG Enterprise offers the **IIS Transaction Analysis** report. To generate this report, do the following:

1. Select the **IIS Transaction Analysis** option from the **Consolidated Reports** node of the **REPORTS BY FUNCTION** tree.
2. Figure 6.24 will appear.

Pick an IIS web server for which the report is to be generated from the **Component** list. In large environments, where a multitude of components are being monitored, many IIS web servers may be listed in the **Component** list box. Selecting a specific server from this 'bottom-less' list may take forever! You can hence filter your component list, so that you have a smaller set of components to choose from. For this, you can optionally pick a **Service.** This ensures that the **Component** list is populated with only those IIS web servers that are engaged in the delivery of a web site service. Pick the **Component** of interest to you from this list. If still the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.

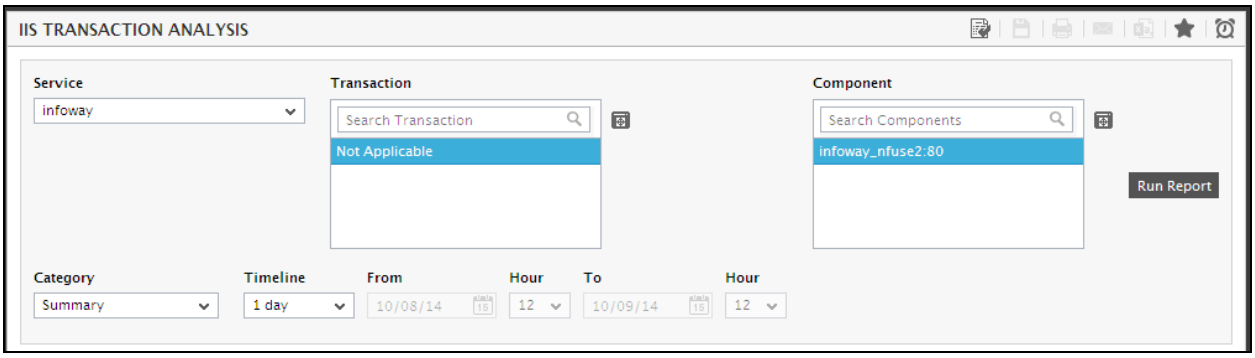


Figure 6.24: Consolidated Reports- IIS Transaction Analysis

3. Selecting a **Component** will populate the **Transaction** list with all those transactions that have been configured for the **IIS Web Transactions** test of that component. Pick the transaction(s) to be analyzed from this list.
4. Then, choose a **Category**. You can either view a summary report or a detailed report by selecting an option from the **Category** drop-down list. To view a summary report, select the **Summary** option from the **Category** list and to view a detailed report, select the **Details** option. If you wish to view both the types of report at a single shot for the selected transactions, then select the **Summary & Details** option from the **Category** drop-down list.
5. Specify a **Timeline** for the report.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Category**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the MORE OPTIONS drop down window (see Figure 6.25). The steps below discuss each of these settings and how they can be customized.

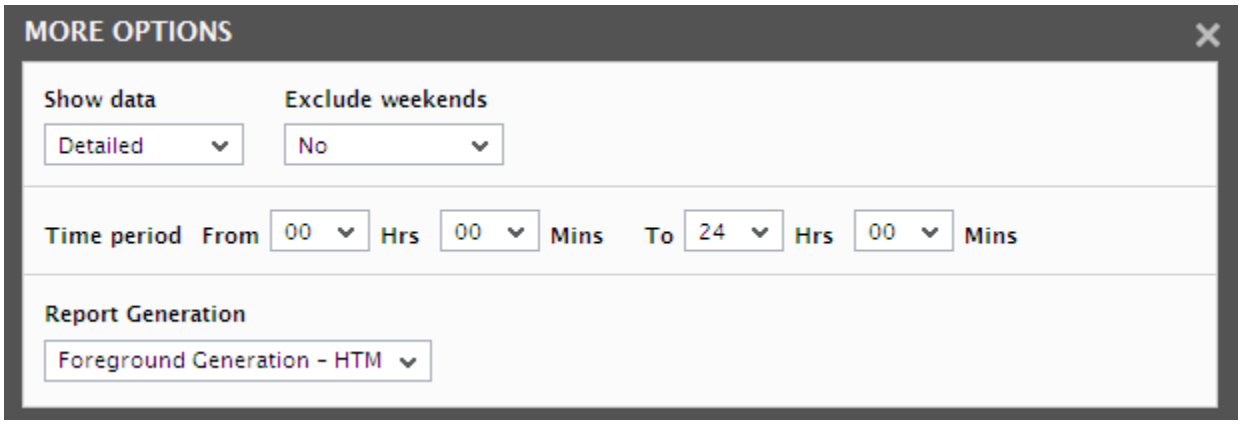


Figure 6.25: The default settings for generating the IIS Transaction Analysis report

7. Next, specify the start time and end time for report generation against the **Time period** field.
8. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If you wish to collect data during weekends too, select **No**.

The **Weekend** settings for a **Consolidated Zone** report will apply to this report too.

9. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear where you would have to provide the name with which the report has to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

10. Finally, click the **Run Report button** to generate the report.
11. If the **Category** chosen is **Summary**, and if the **Report Generation** mode is set to **Foreground Generation - HTML**, then, clicking on the **Run Report button** will invoke Figure 6.26.

Transaction Summary

Transactions	Total Transactions	Slow Transactions	Percentage of Slow Transactions	Percentage of Normal Transactions	Average ResponseTime			Numberof Request		
	(Number)	(Number)	(%)	(%)	(Secs)			(Reqs)		
					Avg	Min	Max	Avg	Min	Max
ExistingCaseOpen	95	27 (>2 Secs)	28.42	71.58	0	2.83	105	0	1.34	11
NewCase	44	12 (>2 Secs)	27.27	72.73	0	0.72	8.5	0	0.62	5
UserAuthentication	28	11 (>2 Secs)	39.29	60.71	0	0.24	10.8	0	0.39	8

Figure 6.26: IIS Transaction Analysis report when Summary option is chosen

12. Figure 6.26 shows the **Transaction Summary** of the chosen **Component**. For every **Transaction** selected, this summary will indicate the following by default:
    - the total number of requests to the transaction that were processed during the given timeline (**Total Transactions**);
    - the number and percentage of transaction requests that resulted in a slow response (**Slow Transactions**);
    - the percentage of normal transactions (**Normal Transactions**);
    - the average response time of slow transactions (**Average Response Time**);
    - the number of requests to the transaction (**Number of requests**);

If you wish to view or configure additional metrics that are transaction centric, then you can add those measures in the [**IIS_TRANSACTION_ANALYSIS**] section of the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. These measures have to be included in the format *Default:<InternalTest>:<InternalMeasure>#<DisplayName>=<Comma-separated list of functions>*. To determine the internal test and measure names, use the procedure explained in Page 212 of this manual.

For instance, if you want the report to display the *Data transmitted* by each transaction, then your specification would be:

Default:SlowTransTest:Data_transmitted#avgData=Avg,Min,Max

Similarly, you can also remove one/more default measures.

From this summary, you can quickly isolate the 'most popular' transactions in terms of the number of requests. Additionally, you can determine how often the transactions have been responding slowly to user requests and thus, easily identify the 'least responsive' (i.e., slow) transactions.

13. If the **Details** option is chosen from the **Category** drop down list, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 6.27.

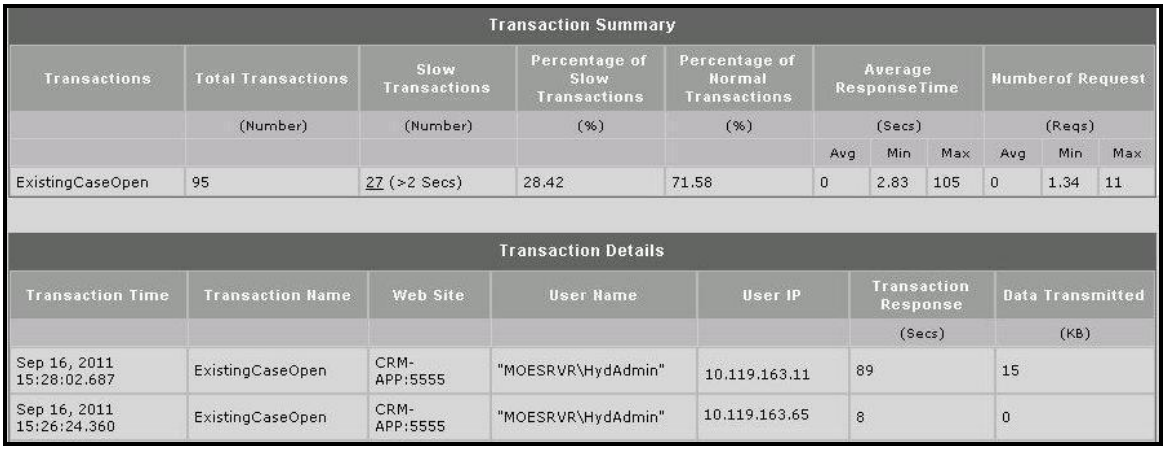
Transaction Details

Transaction Time	Transaction Name	Web Site	User Name	User IP	Transaction Response	Data Transmitted
					(Secs)	(KB)
Sep 16, 2011 15:28:02.687	ExistingCaseOpen	CRM-APP:5555	"MOESRVR\HydAdmin"	10.119.163.11	89	15
Sep 16, 2011 15:26:24.360	ExistingCaseOpen	CRM-APP:5555	"MOESRVR\HydAdmin"	10.119.163.65	8	0
Sep 16, 2011 19:14:02.330	UserAuthentication	CRM-APP:5555	moesrvr\hydadmin	10.119.163.11	73.217	8
Sep 16, 2011 18:52:16.487	ExistingCaseOpen	CRM-APP:5555	moesrvr\hydadmin	10.119.163.65	7.44	16.134765625
Sep 16, 2011 14:59:57.252	ExistingCaseOpen	CRM-APP:5555	"moesrvr\hydadmin"	10.119.163.65	6	15
Sep 16, 2011 13:16:19.703	ExistingCaseOpen	CRM-APP:5555	"MOESRVR\HydAdmin"	10.119.163.65	57	15
Sep 16, 2011 18:52:22.585	NewCase	CRM-APP:5555	moesrvr\hydadmin	10.119.163.65	5.666	15.3134765625
Sep 16, 2011 18:33:37.488	UserAuthentication	CRM-APP:5555	moesrvr\hydadmin	10.119.163.11	5.642	9.22265625
Sep 16, 2011 14:59:22.079	NewCase	CRM-APP:5555	"moesrvr\hydadmin"	10.119.163.65	5	15

Figure 6.27: IIS Transaction Analysis report when Details option is chosen

14. Figure 6.27 shows the **Transaction Details** of the chosen transactions. While the **Summary** report enables you to instantly isolate the 'slow transactions' to the web sites on the IIS web server, the **Details** report enables you to accurately point to the specific transaction requests that evoked a slow response. For every transaction request, the **Transaction Details** report tells you when the transaction was requested, the web site to which the transaction is associated, the user who requested for the transaction, the IP address from which the request was received, the responsiveness of the transaction, and the data that was transmitted.

15. To have a quick glance at both the **Summary** and **Details** at one shot, select the **Summary & Details** option from the **Category** drop-down list, and click **Run Report**. Figure 6.28 will then appear.



Transaction Summary

Transactions	Total Transactions	Slow Transactions	Percentage of Slow Transactions	Percentage of Normal Transactions	Average ResponseTime			Numberof Request		
	(Number)	(Number)	(%)	(%)	(Secs)			(Reqs)		
					Avg	Min	Max	Avg	Min	Max
ExistingCaseOpen	95	27 (>2 Secs)	28.42	71.58	0	2.83	105	0	1.34	11

Transaction Details

Transaction Time	Transaction Name	Web Site	User Name	User IP	Transaction Response	Data Transmitted
					(Secs)	(KB)
Sep 16, 2011 15:28:02.687	ExistingCaseOpen	CRM-APP:5555	"MOESRVR\HydAdmin"	10.119.163.11	89	15
Sep 16, 2011 15:26:24.360	ExistingCaseOpen	CRM-APP:5555	"MOESRVR\HydAdmin"	10.119.163.65	8	0

Figure 6.28: IIS Transaction Analysis report when Summary & Details option is chosen

16. This way, the **IIS Transaction Analysis** report not only sheds light on slow transactions, but also provides you with pointers to when the slowdown occurred and why.

17. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link, that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can

even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the PDF icon in that page.

- Before emailing reports, ensure that the **SMTP mail host** and **eG Administrator ID** are properly configured in the eG administrative interface (using the Alerts -> Mail Settings -> Server Settings option).
- When reports are sent by email, the body of the email will contain the reports so sent in HTML format. You can, if you so desire, send the report as an attachment by setting the **SendMailAsAttachment** flag to **Yes** (or **True**). This flag is available in the **[MISC_ARGS]** section of the **eg_services.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory).

6.4 KPI Health Report

Analyzing a large infrastructure with hundreds of servers can take a lot of time and effort, and it also requires a great deal of expertise. Administrators may often find it tedious to analyze what exactly went wrong in their infrastructure and where does the bottlenect lie. In order to solve such an ordeal, eG Enterprise has introduced the KPI Health report. This report, when generated helps the administrators analyze the performance of an IT infrastructure in a few clicks and highlight bottleneck areas in the infrastructure.

To generate this report, do the following:

1. From the **Consolidated Analysis** node of the **REPORTS BY FUNCTION** tree, select **KPI Health**.
2. Figure 6.29 will then appear.

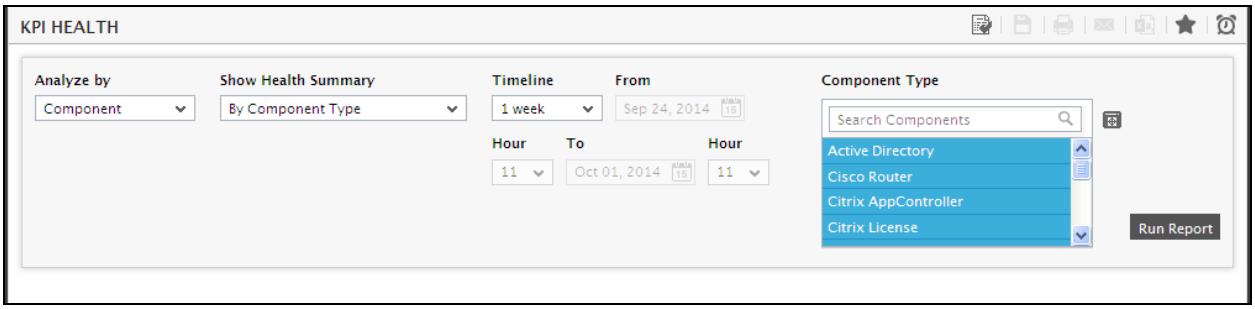


Figure 6.29: Generating the KPI Health report

3. Select a criterion for analysis from the **Analyze by** list box. Using this report, you can analyze the performance of one/more independent components, or those that are part of a segment, service, or a zone. This way, you can assess the impact of the performance of the components on a particular service/segment/zone's performance, and accordingly take performance decisions. The options provided by the **Analyze by** list box are discussed hereunder:
   - **Component**: Select this option to choose the component(s) from across all the managed components in the environment. For instance, for a report on the health of all the managed vSphere/ESX hosts in the environment, select *VMware vSphere ESX* from the **Component Type** list and select **Component** from the

Analyze by list.

- **Service**: Select this option if the components for which a report is to be generated are involved in the delivery of a business service. Then, select a **Service**.
- **Segment**: Choose this option if the components to be evaluated are part of a segment. Then, pick a **Segment** for analysis.
- **Zone**: Pick this option for a report on the performance of components that are included in a zone. Then, choose a **Zone**.

4. By default, the **By Component Type** option will be selected from the **Show Health Summary** list box. This implies that the report is generated based on the health of all the components of a chosen **Component Type**. If the **By Component** option is chosen from this list, then the report will be generated for each component of the chosen **Component Type**.
5. Next, from the **Component Type** list, select the virtual server type for which this report is to be generated. If this list consists of too many **Component Type**s, then viewing all the component types and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Component Type** list. This will open the **COMPONENT TYPE** pop up window using which you can view almost all the component types in a single interface and **Select** the ones for which the report is to be generated. If there are still too many component types in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component type to search for in this text box, and click the icon next to it. The **Component Type** list will then be populated with all component types that embed the specified search string. Select the component type of your choice from this list.
6. Specify a **Timeline** for the report.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more **Component Type**s for report generation. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 6.30). The steps below discuss each of these settings and how they can be customized.

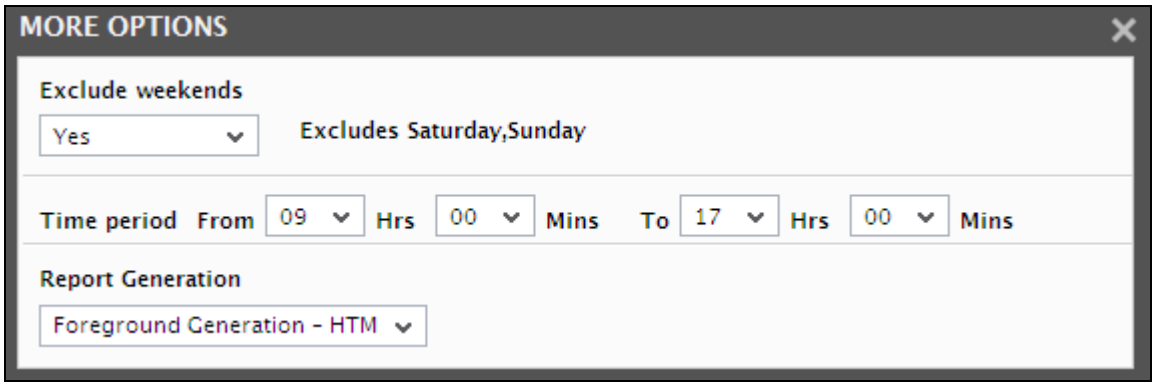


Figure 6.30: The default settings for generating the KPI Health report

8. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_MEASURE_GROUP]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

---

9. Next, indicate the report **Timeperiod**.
10. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

11. Finally, click the **Run Report** button to generate the report.
12. The KPI Health report will be generated as shown in Figure 6.31.

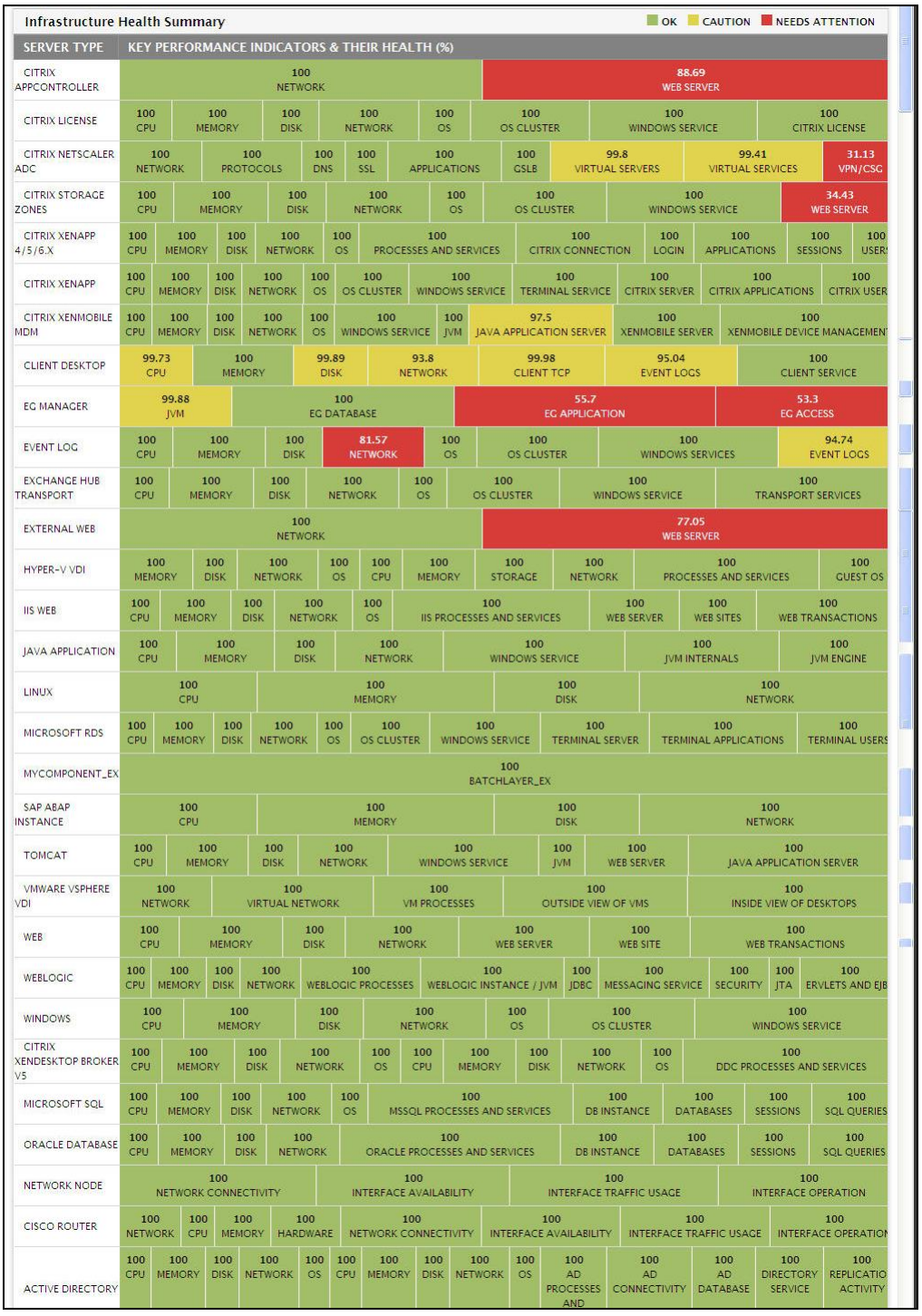


Figure 6.31: The KPI Heath Report

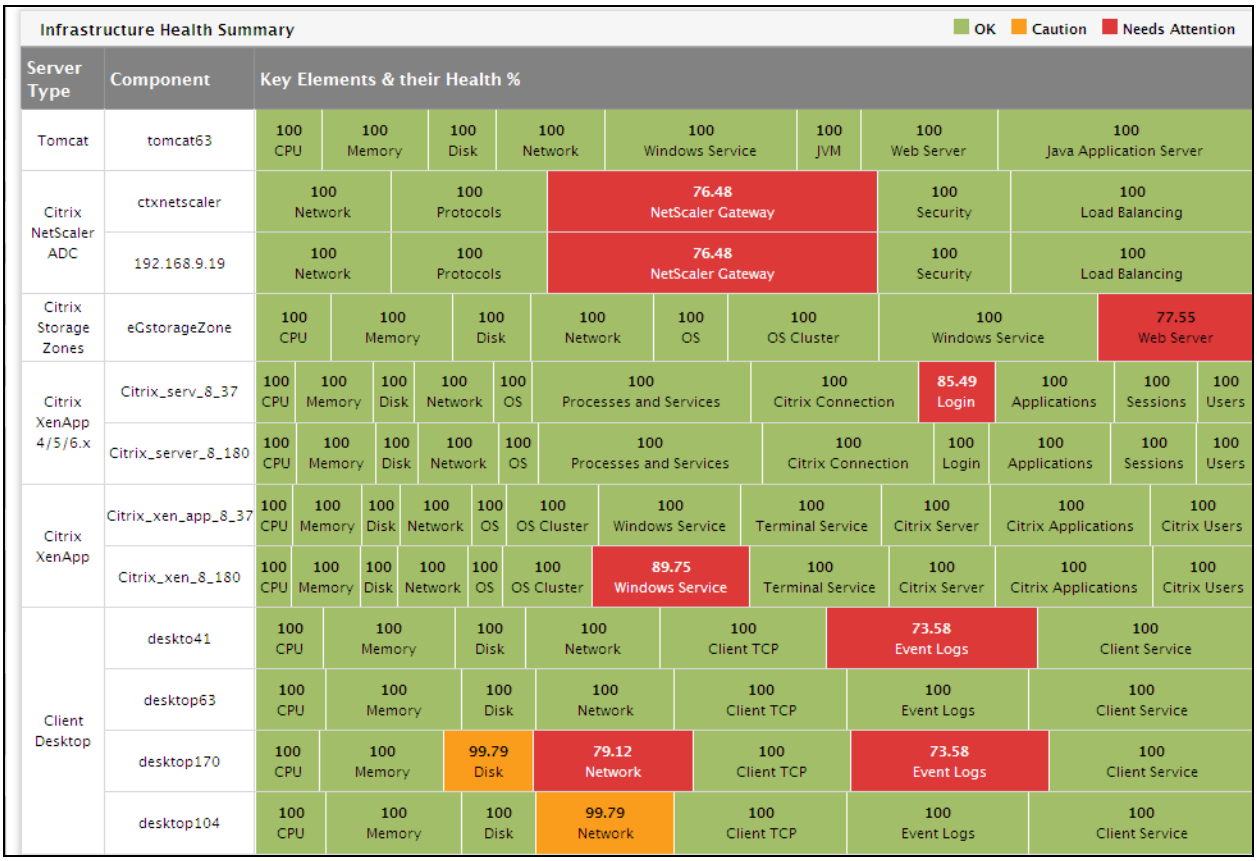
13. From the generated report, you can easily identify the health of the target infrastructure. The generated report consists of the **Server Type** column and the **Key Performance Indicators and their Health(%)** column. The **Key Performance Indicators and their Health** column is further divided in terms of the layers available for the chosen **Component Type**. The health of each layer is represented using distinct colors and values as mentioned in the tabe below:

Color	Value	Health
Green	100	OK
Orange	less than 100 and greater than 90	Caution
Red	less than 90	Needs attention

Administrators can do the following to reconfigure the values with the values of their choice:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[INFRASTRUCTURE_HEALTH_REPORT]** section of the file, the **UnhealthyBound1** parameter is set to 100 and the **UnhealthyBound2** parameter is set to 90 by default. You can modify this by setting the values of your choice for these paramenters. If you set the **UnhealthyBound1** to 90 and the **UnhealthyBound2** to 80, then the color **Red** will appear for a value less than 80 in the generated report and the color **Orange** will appear for the value less than 90 and greater than 80 in the generated report.
- Save the file after making the required changes.

14. If the **By Component** option is chosen from the **Show Health Summary**, then an additional **Component** column will appear. The report will be generated for each individual component of the chosen **Component Type** (see Figure 6.32).



Infrastructure Health Summary — OK | Caution | Needs Attention

Server Type	Component	Key Elements & their Health %
Tomcat	tomcat63	100 CPU; 100 Memory; 100 Disk; 100 Network; 100 Windows Service; 100 JVM; 100 Web Server; 100 Java Application Server
Citrix NetScaler ADC	ctxnetscaler	100 Network; 100 Protocols; 76.48 NetScaler Gateway; 100 Security; 100 Load Balancing
	192.168.9.19	100 Network; 100 Protocols; 76.48 NetScaler Gateway; 100 Security; 100 Load Balancing
Citrix Storage Zones	eGstorageZone	100 CPU; 100 Memory; 100 Disk; 100 Network; 100 OS; 100 OS Cluster; 100 Windows Service; 77.55 Web Server
Citrix XenApp 4/5/6.x	Citrix_serv_8_37	100 CPU; 100 Memory; 100 Disk; 100 Network; 100 OS; 100 Processes and Services; 100 Citrix Connection; 85.49 Login; 100 Applications; 100 Sessions; 100 Users
	Citrix_server_8_180	100 CPU; 100 Memory; 100 Disk; 100 Network; 100 OS; 100 Processes and Services; 100 Citrix Connection; 100 Login; 100 Applications; 100 Sessions; 100 Users
Citrix XenApp	Citrix_xen_app_8_37	100 CPU; 100 Memory; 100 Disk; 100 Network; 100 OS; 100 OS Cluster; 100 Windows Service; 100 Terminal Service; 100 Citrix Server; 100 Citrix Applications; 100 Citrix Users
	Citrix_xen_8_180	100 CPU; 100 Memory; 100 Disk; 100 Network; 100 OS; 100 OS Cluster; 89.75 Windows Service; 100 Terminal Service; 100 Citrix Server; 100 Citrix Applications; 100 Citrix Users
Client Desktop	deskto41	100 CPU; 100 Memory; 100 Disk; 100 Network; 100 Client TCP; 73.58 Event Logs; 100 Client Service
	desktop63	100 CPU; 100 Memory; 100 Disk; 100 Network; 100 Client TCP; 100 Event Logs; 100 Client Service
	desktop170	100 CPU; 100 Memory; 99.79 Disk; 79.12 Network; 100 Client TCP; 73.58 Event Logs; 100 Client Service
	desktop104	100 CPU; 100 Memory; 100 Disk; 99.79 Network; 100 Client TCP; 100 Event Logs; 100 Client Service

Figure 6.32: The KPI Health Report when the 'By Component' option is chosen

15. If the **By Infrastructure Tier** option is chosen from the **Show Health Summary**, then an additional **Infrastructure Tier** column will appear in the report. This Infrastructure Tier column shows the category name of the Component Types that possess similar functionalities i.e, the component types with similar functionalities will be logically grouped under a common category name. For example, the **Oracle Database** and **Microsoft SQL** Component Types will be grouped under the **Database Servers** (see Figure 6.33).

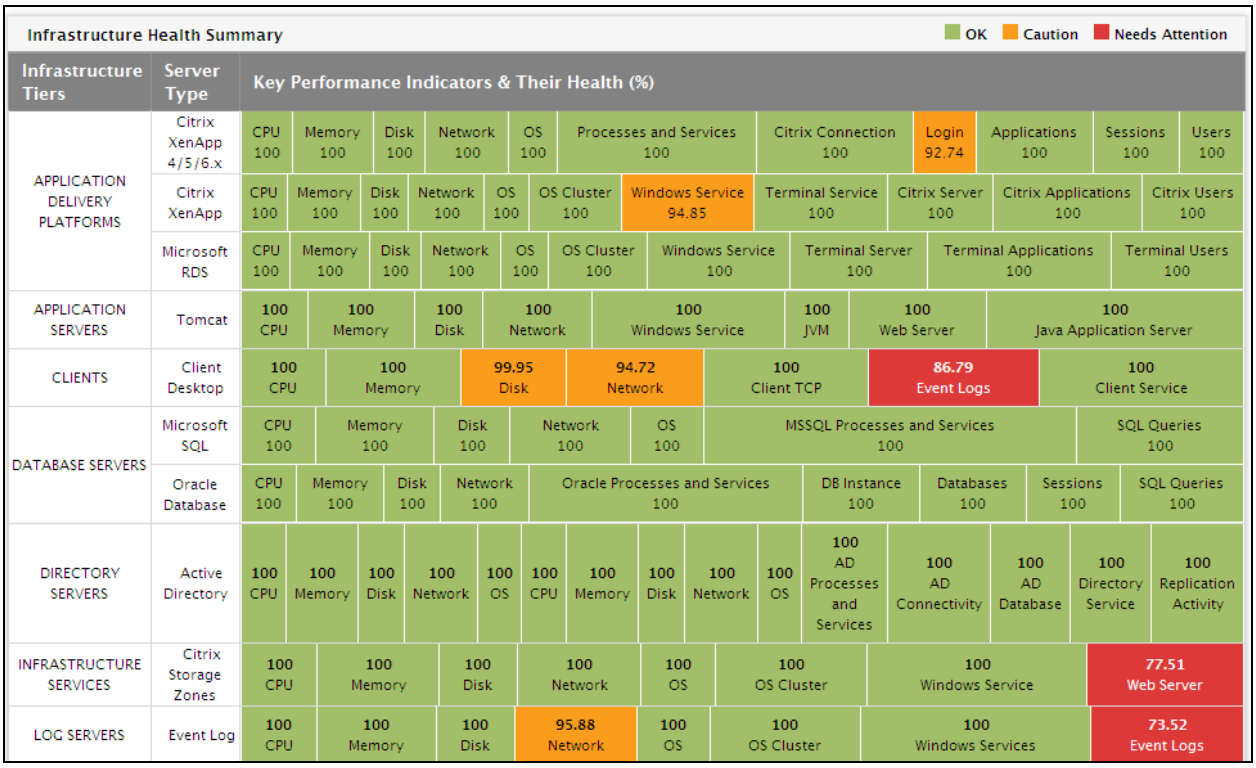


Figure 6.33: The KPI Health report when the By Infrastructure Tier option is clicked

16. Administrators can further drill down the report and figure out the exact bottleneck area in the infrastructure by clicking each problematic layer of the chosen **Component Type**. In our example, let us click on the Virtual Servers layer of the Citrix Netscaler ADC component (see Figure 6.29), a pop up window will appear as shown in Figure 6.34 listing the problems that are currently affecting the health of the layer.

PROBLEMS AFFECTING THE HEALTH OF NETSCALER GATEWAY
Associated Metrics And Their Health %
Server state is abnormal
Total Problem Duration : 9h 36m
Test - VPN Virtual Servers
Measure - Server state
Affected Components
View problem history
Component Type
Component
Test
Descriptor
Total Duration
Diagnosis Data
Citrix NetScaler ADC
192.168.9.19
VPN Virtual Servers
xenapc.eginnovations.com
9h 22m
Citrix NetScaler ADC
ctxnetscaler
VPN Virtual Servers
xenapc.eginnovations.com
9h 22m
VPN Virtual Servers - Server state
Number
2.5
2
1.5
1
0.5
0
Sep 26, 00:00
Sep 27, 00:00
Sep 28, 00:00
Sep 29, 00:00
Sep 30, 00:00
Oct 01, 00:00
Oct 02, 00:00
Time (MMM dd HH:mm)
192.168.9.19 - xenapc.eginnovations.com
ctxnetscaler - xenapc.eginnovations.com
Recommendation
If the virtual server is up, then the value of this measure is Up. If the virtual server is down, then the value of this measure is Down. The numeric values that correspond to these measure values have been listed in the table below:
Measure Value
Numeric Value
Up
0
Down
1
Note:
By default, this measure reports the above-mentioned Measure Values while indicating whether a virtual server is up/down. However, in the graph of this measure, the Measure Values will be represented using their corresponding numeric equivalents only.
Use the detailed diagnosis of this measure to determine the primary IP address, primary port, and protocol type of each VPN virtual server being monitored.

Figure 6.34: The pop up window that lists the currently existing problems in the layer

17. From Figure 6.34, you can easily identify that each problem encounterd by the layer has been dealt with a graphical representation and the duration of the problem. You can also easily identify the **Test** and the **Measure** that is causing the problem and the total time duration for which this measure has been problematic can be identified using the **Total Problem Duration** field. Additionally, a graph represents the exact time duration for which this measure has been problematic. The **Recommendation** section helps you in interpreting the problem and provides suggestions to overcome the problem (in some cases).

18. Clicking the **View Problem History** button of Figure 6.34 opens a **PROBLEM HISTORY** pop up window (see Figure 6.35) which lists the time periods during which the health of the chosen components were affected.

PROBLEM HISTORY

Type	Component – Descriptor	Start Time	Duration
Citrix NetScaler ADC	192.168.9.19-xenapc.eginnovations.com	Sep 26, 2014 09:59:52	14mins
Citrix NetScaler ADC	192.168.9.19-xenapc.eginnovations.com	Sep 26, 2014 11:26:36	5hrs 34mins
Citrix NetScaler ADC	192.168.9.19-xenapc.eginnovations.com	Sep 30, 2014 11:16:31	3hrs 17mins
Citrix NetScaler ADC	192.168.9.19-xenapc.eginnovations.com	Oct 01, 2014 10:49:04	32mins
Citrix NetScaler ADC	ctxnetscaler-xenapc.eginnovations.com	Sep 26, 2014 09:59:52	14mins
Citrix NetScaler ADC	ctxnetscaler-xenapc.eginnovations.com	Sep 26, 2014 11:26:36	5hrs 34mins
Citrix NetScaler ADC	ctxnetscaler-xenapc.eginnovations.com	Sep 30, 2014 11:16:31	3hrs 17mins

Figure 6.35: The Problem History pop up window

19. If the detailed diagnosis for a chosen measure is collected by the eG egent, then clicking on the icon of Figure 6.34 will lead you to Figure 6.36 that shows the Detailed diagnosis of the measure.

DIAGNOSIS FOR ERRORS – EGMANAGER

Diagnosis

Component: 192.168.9.19 | Test: VPN Virtual Servers | Description: xenapc.eginnovations.com

Measurement: Server state | Timeline: 1 hour | From: Oct 01, 2014 | Hr: 10 | Min: 23 | To: Oct 01, 2014

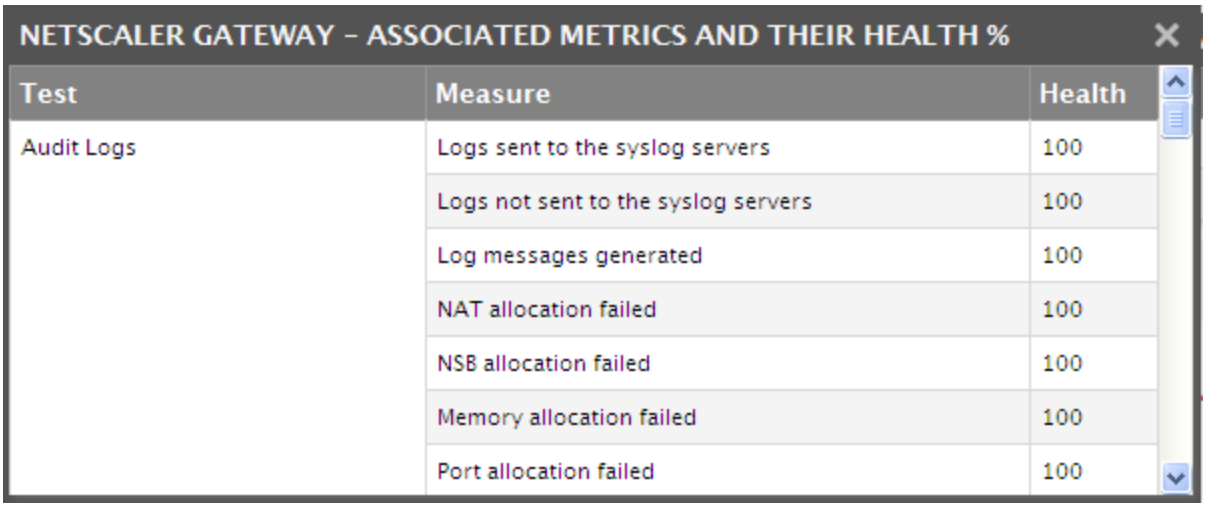
Hr: 11 | Min: 23 | Submit

Shows the details of VPN virtual servers on NetScaler

TIME	PRIMARY IP ADDRESS	PRIMARY PORT	PROTOCOL TYPE
Oct 01, 2014 11:21:58	192.168.10.49	443	SSL
Oct 01, 2014 11:17:15	192.168.10.49	443	SSL
Oct 01, 2014 11:12:37	192.168.10.49	443	SSL
Oct 01, 2014 11:07:55	192.168.10.49	443	SSL
Oct 01, 2014 11:03:19	192.168.10.49	443	SSL
Oct 01, 2014 10:58:14	192.168.10.49	443	SSL
Oct 01, 2014 10:53:38	192.168.10.49	443	SSL
Oct 01, 2014 10:48:57	192.168.10.49	443	SSL

Figure 6.36: The detailed diagnosis of the chosen measure

20. To view the health of all the measures that are associated with the chosen component and Component Type, click on the **Associated Metrics and Their Health%** link in Figure 6.34. This will lead you to Figure 6.37 where you will be able to figure out the measures that have been problematic and affecting the overall health of the chosen **Component Type**.



NETSCALER GATEWAY – ASSOCIATED METRICS AND THEIR HEALTH %

Test	Measure	Health
Audit Logs	Logs sent to the syslog servers	100
	Logs not sent to the syslog servers	100
	Log messages generated	100
	NAT allocation failed	100
	NSB allocation failed	100
	Memory allocation failed	100
	Port allocation failed	100

Figure 6.37: The pop up window displaying the health of the metric associated with the chosen Component Type

7

Comparison Reports

Apart from individual measure and summary reports, the eG Reporter also offers **Comparison Reports**. Comparison reports enable users to compare, correlate, and analyze across a wide variety of performance metrics generated by the monitored environment, so as to facilitate quick and accurate root-cause identification.

eG offers three types of Comparison reports, namely, **COMPONENTS**, **TESTS**, and **TOP-N**.

7.1 Components Comparison Report

The **Components** comparison report allows administrators to compare statistics pertaining to selected components. For example, consider an environment comprising of a Web server supported by an Oracle server, Ldap server, and a Dns server (see Figure 7.1).

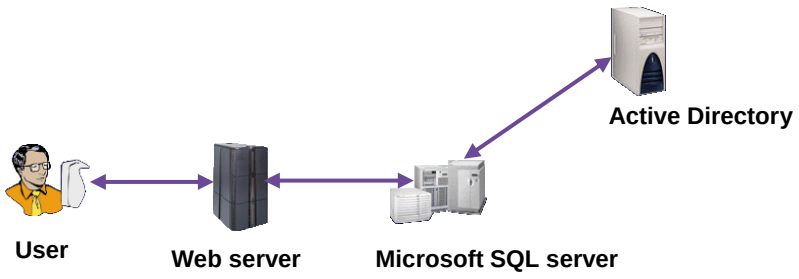


Figure 7.1: A sample environment

Say that the web server in Figure 7.1 hosts a web site that depends upon the Microsoft SQL server for storage and recovery of critical data. The Microsoft SQL server uses the Active Directory server for authenticating user accesses.

Assume that the user accessing the web site (on the web server) begins to experience a marked deterioration in the responsiveness of the site. An increase in the response time of a web site could be caused by either/all of the following reasons:

- A network delay between the web server and the user
- A problem in the response time of one/all of the other servers (Microsoft SQL, Active Directory) that the web server relies on.

A comparison report provides an easy way of comparing the response times of each application.

To generate a comparison report for the above-mentioned scenario, do the following:

1. Select the **Components** option from the **Comparison Reports** node of the **REPORTS BY FUNCTION** tree.

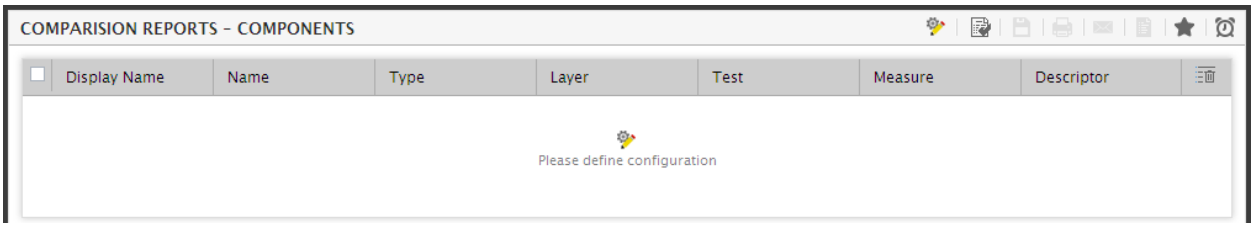


Figure 7.2: Generating a Comparison report

2. Figure 7.2 will then appear. Click on the **Please define configuration** to specify the criteria for generating the comparison reports.

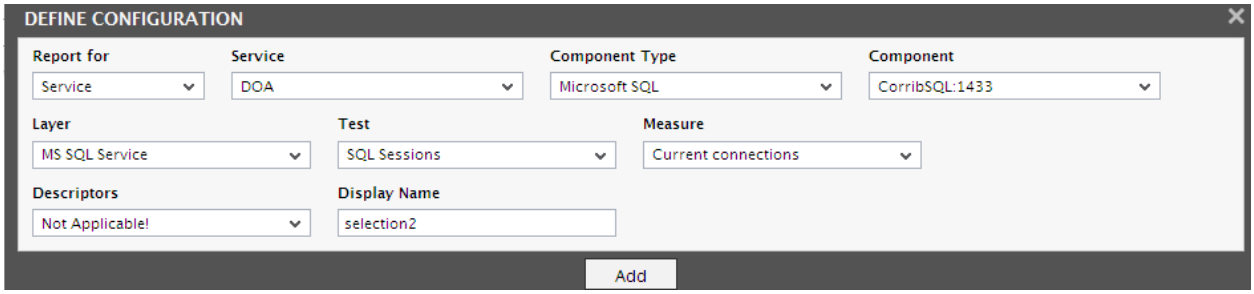


Figure 7.3: Defining the configuration for generating the Comparison report

3. When Figure 7.3 appears, first, select a filter criterion from the Report for list box. Administrators of large IT infrastructures, which are characterized by hundreds of components, may find it difficult to pick and choose the components for which a report is to be generated; this is because, in such environments, the Component list in this page will be populated with a large number of components, which would naturally make component selection tough. To enable administrators of such environments to quickly locate the components of interest to them and swiftly generate the reports, eG Enterprise provides a Report for list that consists of a variety of filter options. By default, the Component option is chosen from this list - this indicates that all the managed components of a chosen type will be available for selection in the Component list by default. In addition to this, the Report for list provides the following filter options as well:

   - **Service**: If the component for which reports are to be generated is involved in the delivery of a particular service, then pick this option from the **Report for** list. Doing so will invoke a **Service** list from which a service name is to be chosen. Upon selection of a service, the component types that are part of the service will populate the **Component type** list in this page. Once you pick a component type, all components of that type, which are engaged in the delivery of the chosen service, will be displayed as candidates for selection in the **Components** list. If there are still too many components in the list to choose from, you can narrow your search further by using the **Filter by** text box. Specify the whole/part of the component name to search for in this text box, and click the right-arrow button next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

   - **Segment**: If the components for which a report is to be generated is part of a segment, pick the **Segment** option from the **Report for** list. Then, select the segment of interest to you from the **Segment** list. This will populate the **Component type** list with the types of components that are part of the chosen segment. If you select a component type from the **Component type** list, then, all components of that type, which are part of the chosen segment, will be displayed in the **Components** list for selection. If there are still too many components in the list to choose from, you can narrow your search further by using the **Filter by** text box. Specify the whole/part of the component name to search for in this text box, and click the right-arrow button next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

- **Zone**: If the components for which a report is to be generated is part of a zone, pick the **Zone** option from the **Report for** list. To include sub-zones also in your search for components, set the **Include SubZones** flag to **Yes**. Then, select the zone of interest to you from the **Zone** list. This will populate the **Component type** list with the types of components that are part of the chosen zone. If you select a component type from the **Component type** list, then, all components of that type, which are part of the chosen zone, will be displayed in the **Components** list for selection. If there are too many components in the list to choose from, you can narrow your search further by using the **Filter by** text box. Specify the whole/part of the component name to search for in this text box, and click the right-arrow button next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

4. In the case of our example, the components to be compared are part of a web site service. Therefore, from the **Report for** list, select **Service** as the basis for comparison. Doing so populates the **Service** list in Figure 7.3 with the complete list of fully configured services in the environment. From this list, select the service for which the comparison report is to be generated.
5. The **Component** list in Figure 7.3 will then be populated with the components that are involved in the delivery of the chosen **Service**. Pick the component that is a candidate for the comparison from this list.
6. The **Layer** list box (see Figure 7.3) will now display the layers that are part of the layer model of the chosen component. From this list, select the **Layer** for which a graph is to be generated.
7. Upon selection of a layer, the **Test** list box (see Figure 7.3) will display the tests associated with that layer. Select the **Test** that generates the measure for which a graph is to be generated.
8. All the measures that will be generated by the selected test will then appear in the **Measure** list box (see Figure 7.3). From this list, pick the **Measure** that is to be included in the comparison report.
9. If the chosen test consists of descriptors, then the same will be listed in the **Descriptors** list box. Select the descriptor that needs to be included for comparison.
10. If a meaningful name for the specification should be displayed on the graph, provide a **Display Name** here.
11. Now, add these specifications to the list box below by clicking the **Add** button (see Figure 7.3).
12. Similarly, add the specifications pertaining to all the measures that need to be compared and analyzed (see Figure 7.4). In our example, to compare response times, add the response time measure related to the web server, AD server, and Oracle server, and the Average delay measure pertaining to the web server.

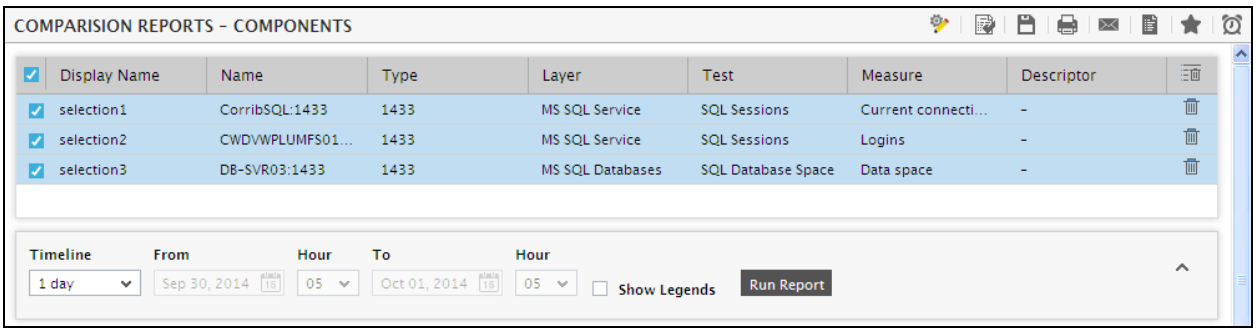


Figure 7.4: Adding the measures to be compared

13. If any of the added specifications need to be removed, click on the check box corresponding to the specification, and then click the button (see Figure 7.4). If all the specifications are to be removed at one shot, simply select the check box before the **Display Name** column in Figure 7.4. Then, click the **Remove** button.
14. Next, from the added measures, select the ones for which a comparison graph is to be generated by clicking on

the relevant check boxes. Since all the added measures in our example need to be compared, select them all.

15. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

16. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick the measures that are to be compared. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 7.5). The steps below discuss each of these settings and how they can be customized.

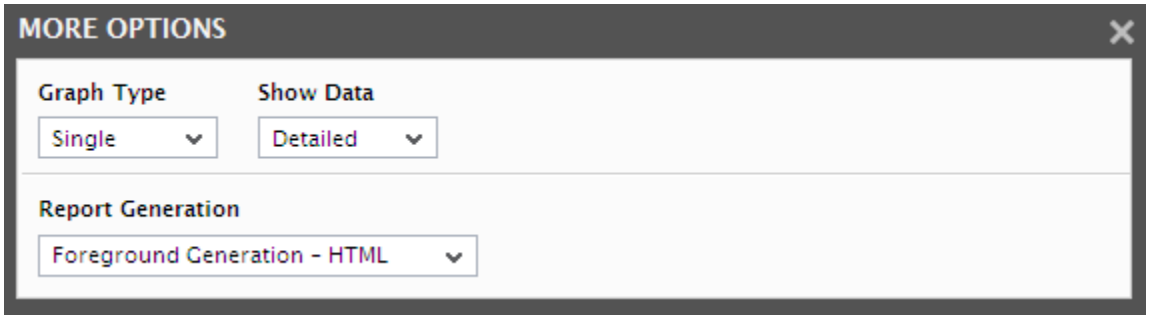


Figure 7.5: The default settings for generating the Comparison reports

17. From Figure 7.5, select the **Graph Type**. To view a single graph that plots the values of all the selected measures, select the **Single** option. If individual graphs for each of the selected measures need to be viewed, then, select the **Multiple** option (see Figure 7.5).

18. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed**

test information base comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 7.5. By default, the **Detailed** option is selected in Figure 7.5 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day. If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:
- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.

- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which Detailed reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini** file. For instance, to make sure that **Detailed** reports are disallowed for a Timeline of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file. Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **Run Report button** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option
- To proceed with the **Trend** report generation, click on the **OK** button in the message box. To terminate **Trend** report generation, click the **Cancel** button.

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19. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

20. Finally, click the **Run Report** button to generate the graph. If the **Graph Type** is set to **Single**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 7.6.

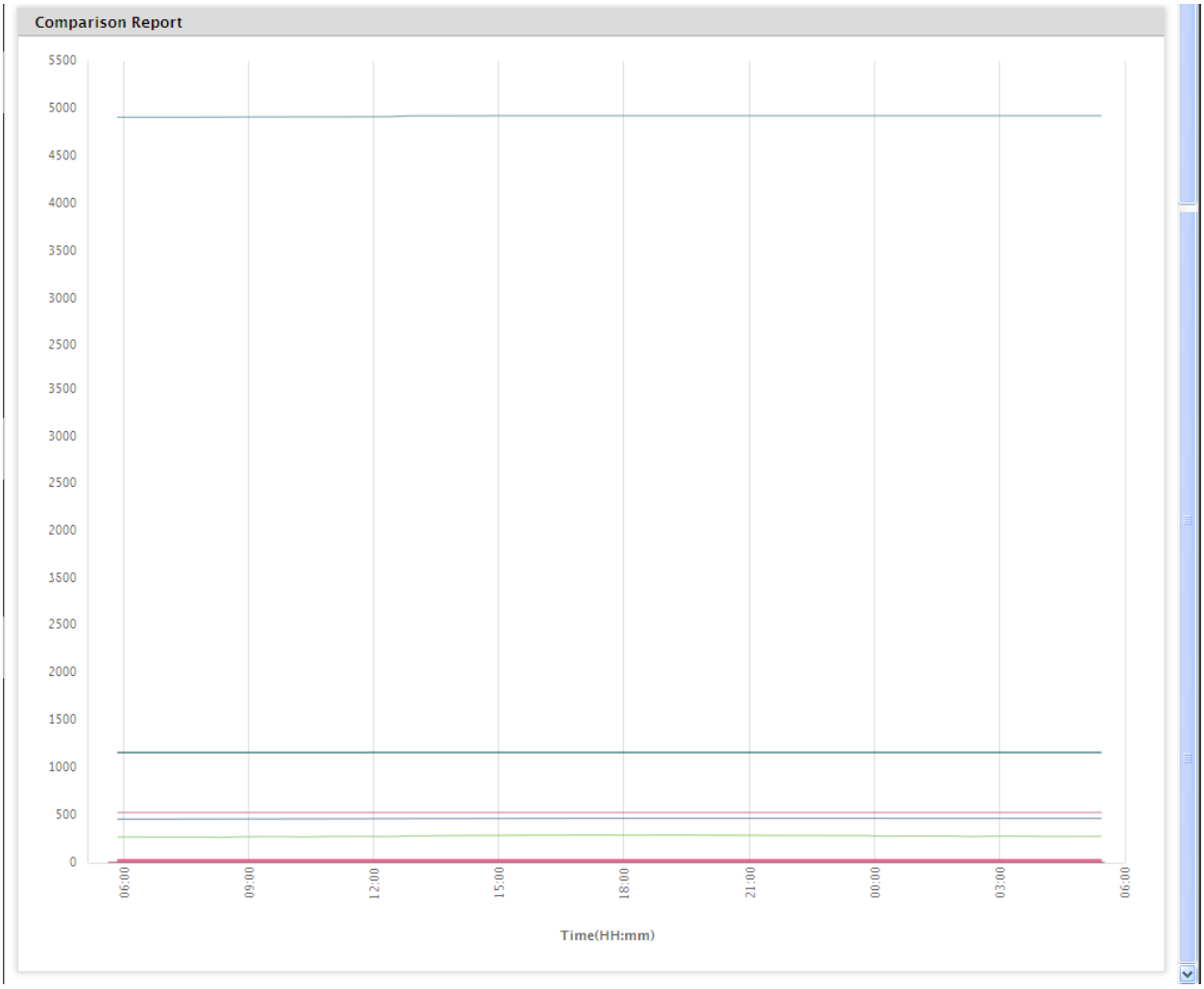


Figure 7.6: A single comparison graph

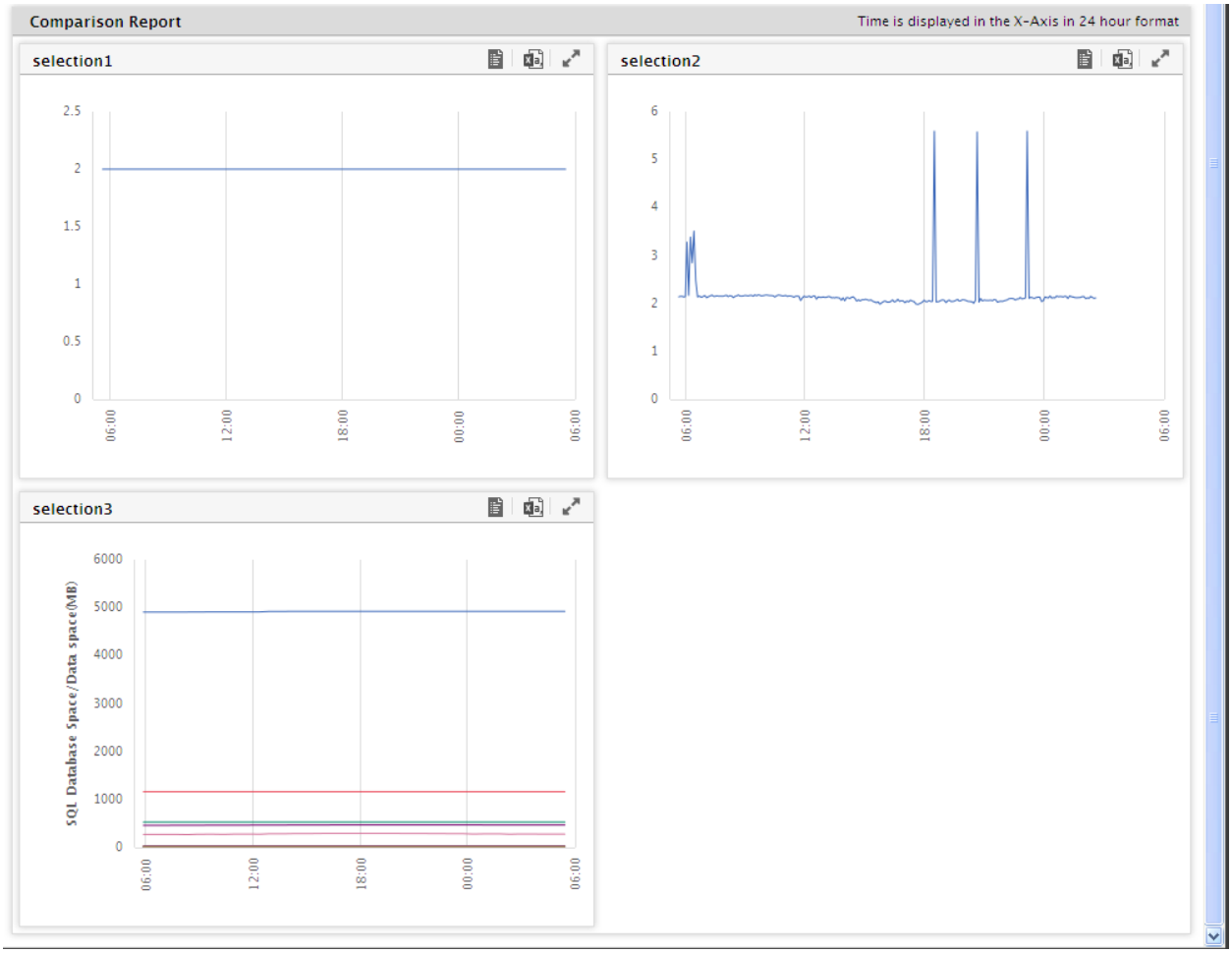


Figure 7.7: Graph for each of the measures chosen for comparison

21. Similarly, if the **Graphtype** chosen is **Multiple** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report button** will invoke Figure 7.7. Both the figures clearly illustrate that the problem is not with the network, but with the Oracle server. Note that the Oracle server's responsiveness has experienced quite a few surges during the specified **Timeline**. From Figure 7.6 and Figure 7.7, it is evident that the slow down in the Oracle server has only rippled to the web server, thereby affecting its performance.

22. With that, we have demonstrated how to generate a report comparing the responsiveness of the components involved in the delivery of a web site service. As stated earlier, besides service components, the comparison reports page can be used to compare independent components, segment components, and even, zone components. For instance, to compare independent components, select **Component** from the **Report for** list, select an independent **Component**, pick the **Layer**, **Test**, **Measure** and **Descriptor** (if applicable) to be compared, and click the **Add** button (see Figure 7.8). This way, multiple components can be chosen for comparison.

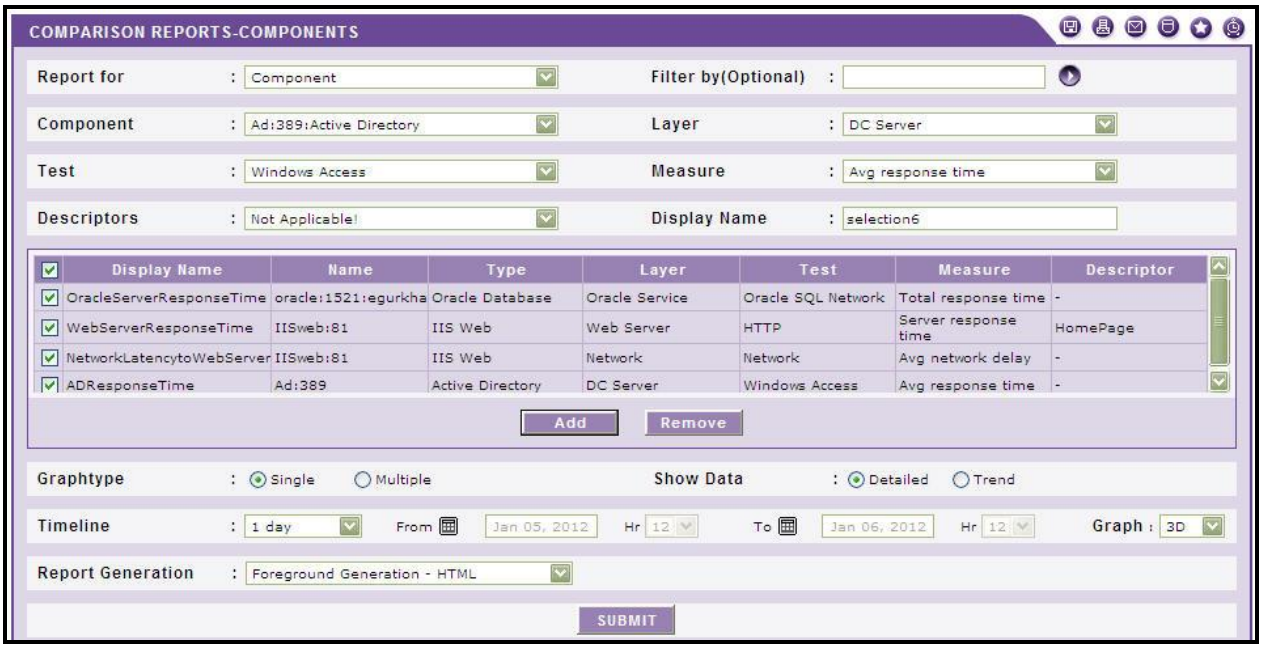

COMPARISON REPORTS-COMPONENTS
Report for : Component
Filter by(Optional) :
Component : Ad:389:Active Directory
Layer : DC Server
Test : Windows Access
Measure : Avg response time
Descriptors : Not Applicable!
Display Name : selection6
Display Name | Name | Type | Layer | Test | Measure | Descriptor
OracleServerResponseTime | oracle:1521:egurkha | Oracle Database | Oracle Service | Oracle SQL Network | Total response time | -
WebServerResponseTime | IISweb:81 | IIS Web | Web Server | HTTP | Server response time | HomePage
NetworkLatencytoWebServer | IISweb:81 | IIS Web | Network | Network | Avg network delay | -
ADResponseTime | Ad:389 | Active Directory | DC Server | Windows Access | Avg response time | -
Add
Remove
Graphtype : Single Multiple
Show Data : Detailed Trend
Timeline : 1 day From Jan 05, 2012 Hr 12 To Jan 06, 2012 Hr 12 Graph : 3D
Report Generation : Foreground Generation - HTML
SUBMIT

Figure 7.8: Choosing independent components for comparison

23. Similarly, to draw a performance comparison chart for segment components, select **Segment** from the **Report for** list, choose the **Segment** whose components are to be compared, select the segment **Component** that will participate in the comparative analysis, pick the **Layer**, **Test**, **Measure** and **Descriptor** (if applicable) to be compared, and click the **Add** button (see Figure 7.9). This way, multiple components from the same segment or across segments can be chosen for comparison.

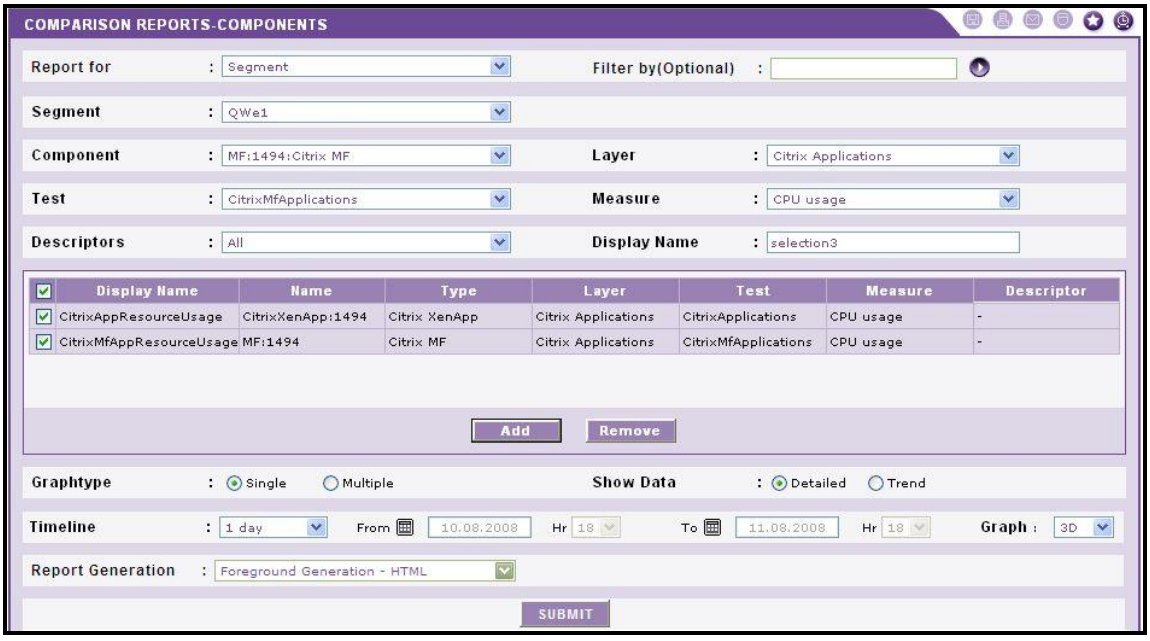

COMPARISON REPORTS-COMPONENTS
Report for : Segment
Filter by(Optional) :
Segment : QWe1
Component : MF:1494:Citrix MF
Layer : Citrix Applications
Test : CitrixMfApplications
Measure : CPU usage
Descriptors : All
Display Name : selection3
Display Name | Name | Type | Layer | Test | Measure | Descriptor
CitrixAppResourceUsage | CitrixXenApp:1494 | Citrix XenApp | Citrix Applications | CitrixApplications | CPU usage | -
CitrixMfAppResourceUsage | MF:1494 | Citrix MF | Citrix Applications | CitrixMfApplications | CPU usage | -
Add
Remove
Graphtype : Single Multiple
Show Data : Detailed Trend
Timeline : 1 day From 10.08.2008 Hr 18 To 11.08.2008 Hr 18 Graph : 3D
Report Generation : Foreground Generation - HTML
SUBMIT

Figure 7.9: Choosing the segment components to be compared

24. Likewise, for comparing performance across a particular zone, select **Zone** from the **Report for** list, choose the **Zone**, select the zone **Component** that will participate in the comparison, pick the **Layer**, **Test**, **Measure** and

Descriptor (if applicable) to be compared, and click the **Add** button (see Figure 7.10). In the same manner, multiple components from the same zone or across zones can be chosen for comparison.

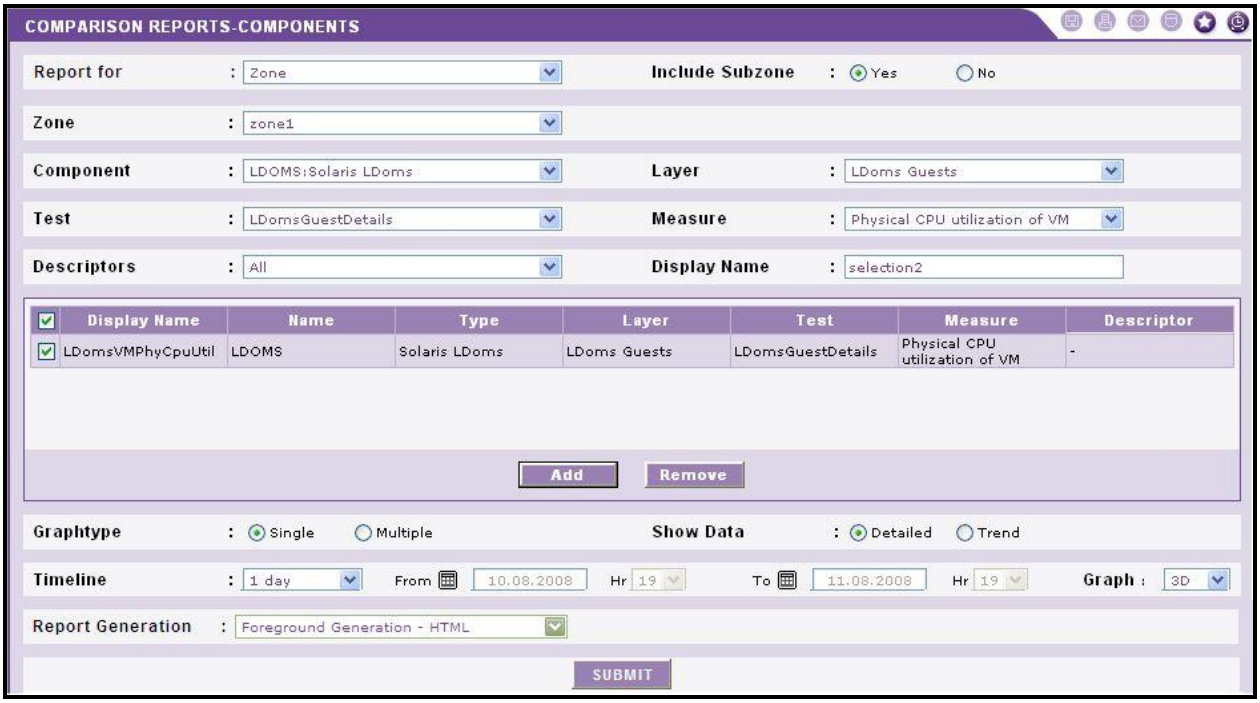


Figure 7.10: Choosing the zone components to be included in the comparison

25. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the Run Report button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the **PDF** icon in that page.

7.2 Tests Comparison Report

The **Comparison Reports -Components** report is ideal if specific test results related to one or more components are chosen for comparison. The **Tests** report, on the other hand, can be used if the metrics collected by one test have to be plotted across multiple components. Such a report brings to light the best/worst candidates in a chosen performance area; more time and focus can then be reserved for the problem-prone components. For instance, using this report, you can compare the CPU utilization of all monitored components in the environment and identify the most CPU-intensive component. The procedure for generating this report is as given below:

1. Select the **Tests** option from the **Comparison Reports** node of the **REPORTS BY FUNCTION** tree.

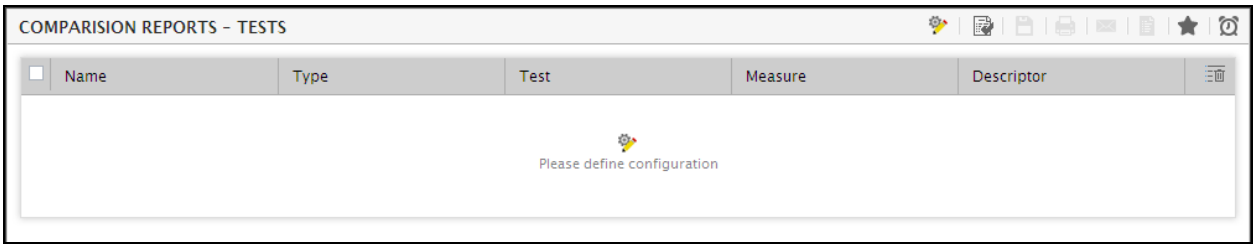


Figure 7.11: Generating the Comparison reports for tests

2. When Figure 7.11 appears, click on the **Please define configuration** to specify the criteria for comparing the metrics across multiple components.

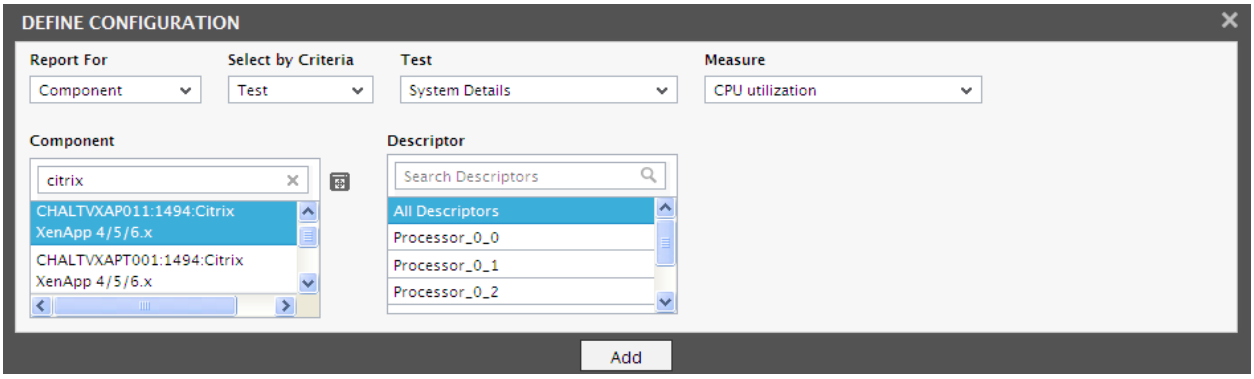


Figure 7.12: Specifying the criteria for Comparison Reports - Tests

3. From Figure 7.12, select a filter criterion from the **Report for** list box. Administrators of large IT infrastructures, which are characterized by hundreds of components, may find it difficult to pick and choose the components for which a report is to be generated; this is because, in such environments, the **Component** list in this page will be populated with a large number of components, which would naturally make component selection tough. To enable administrators of such environments to quickly locate the components of interest to them and swiftly generate the reports, eG Enterprise provides a Report for list that consists of a variety of filter options. By default, the **Component** option is chosen from this list - this indicates that all the managed components of a chosen type will be available for selection in the **Component** list by default. In addition to this, the **Report for** list provides the following filter options as well:

   - **Service**: If the component for which reports are to be generated is involved in the delivery of a particular service, then pick this option from the **Report for** list. Doing so will invoke a **Service** list from which a service name is to be chosen. Upon selection of a service, the component types that are part of the service will populate the **Component type** list in this page. Once you pick a component type, all components of that type, which are engaged in the delivery of the chosen service, will be displayed as candidates for selection in the **Components** list. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

   - **Segment**: If the components for which a report is to be generated is part of a segment, pick the **Segment** option from the **Report for** list. Then, select the segment of interest to you from the **Segment** list. This will populate the **Component type** list with the types of components that are part of the chosen segment. If you select a component type from the **Component type** list, then, all components of that type, which are part of the chosen segment, will be displayed in the **Components** list for selection. If there are still too many

components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

- **Zone**: If the components for which a report is to be generated is part of a zone, pick the **Zone** option from the **Report for** list. To include sub-zones also in your search for components, set the **Include SubZones** flag to **Yes**. Then, select the zone of interest to you from the **Zone** list. This will populate the **Component type** list with the types of components that are part of the chosen zone. If you select a component type from the **Component type** list, then, all components of that type, which are part of the chosen zone, will be displayed in the **Components** list for selection. If there are too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

  Since our example seeks to compare the CPU usage of all managed components in the environment, select the **Component** option from the **Compare** list.

4. Next, you will need to choose between the **Metrics** and **Test** options from the **Select by Criteria** list. If you select the **Test** option, you will be expected to select a **Test**, then the **Measure** to be compared. For our example therefore, you will first have to select System Details test, then choose the CPU utilization measure, and finally select all the components displayed in the **Component** list (see Figure 7.13).

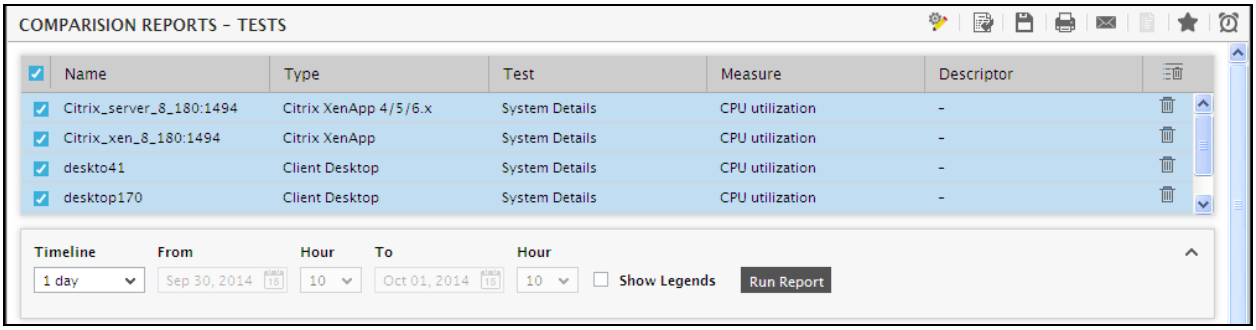


Figure 7.13: Selecting a Test, Measure, and Component for comparison

5. On the other hand, the **Metrics** option offers pre-defined test/measure combinations. When this option is chosen, you will see a pre-configured list of metrics displayed. Instead of selecting a specific **Test** and **Measure** as required by the **Test** option, you can simply select a performance parameter from the **Metrics** list, and then pick the components across which the parameter is to be compared. For our example therefore, you do not have to remember the test and measure that returns the desired CPU usage value; instead, just select the Server CPU utilization metric from the Metrics list, and select all the components from the **Component** list (see Figure 7.14).

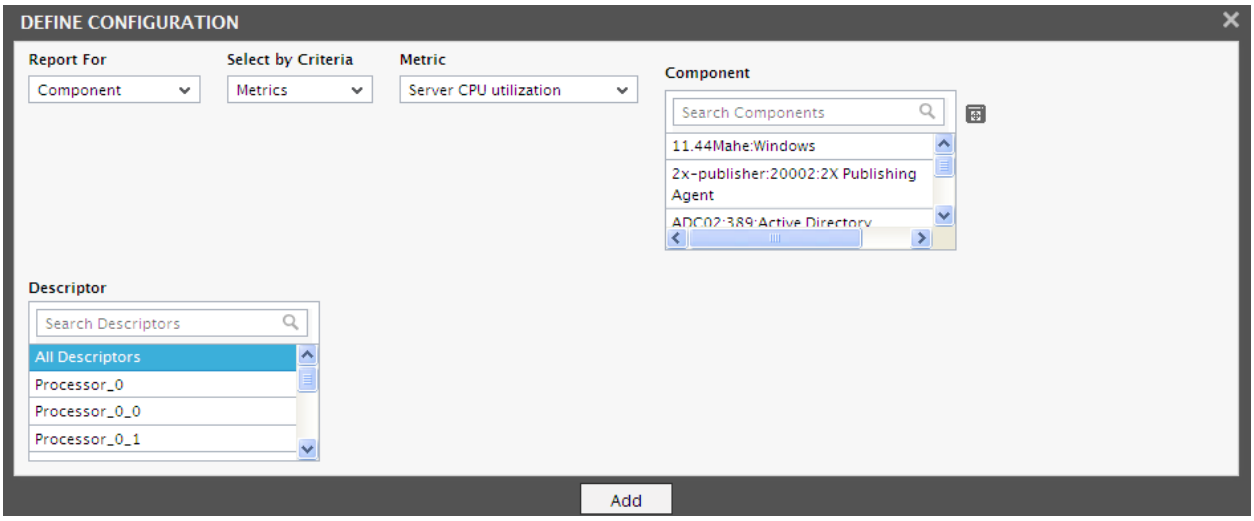


Figure 7.14: Selecting from a pre-defined list of metrics

6. By default, the **Metrics** list comes with a set of pre-configured parameters. You can expand the **Metrics** list by adding more performance parameters to it. To override the default **Metrics** list, edit the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory), and add a new metric to the **[REPORT_TEMPLATES]** section therein, in the following format:

   <DisplayName>=<InternalTestName>:<InternalMeasureName>

   For example, to compare the availability of network connection to all the components in the infrastructure, do the following:

   - First, determine the *Internal name* of the test and measure to be configured. For that, do the following:
     - Open the **eg_lang*.ini** file (from the **<EG_INSTALL_DIR>\manager\config** directory), where * is the language code that represents the language preference that you have set using the **USER PROFILE** page. In this file, the component types, measure names, test names, layer names, measure descriptions, and a wide range of other display information are expressed in a particular language, and are mapped to their eG equivalents.
     - Now, search the **eg_lang*.ini** file for the test name of interest to you. In the case of our example, search for "Network".
     - Once it is found, determine which internal eG test it is mapped to. For instance, the eG equivalent of the "Network" test is "NetworkTest".
     - Similarly, you can also find the internal measure name that eG Enterprise uses for referring to the *Network availability* measure; by default, this will be *Availability*.
   - Now that the eG internal names have been identified, proceed to configure the metric in the following manner:

     Network availability=NetworkTest:Availability

     The DisplayName, *Network availability*, will be added to the **Metrics** list of Figure 7.14.

7. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Component** list. This will expand the **Component** list so that you can view almost all the components in a single interface and select the ones for which the report is to be generated.

8. If descriptors are relevant for the selected test/metric, a list of descriptors will be displayed in the **Descriptor**

text box. You can select the descriptors for which reports are to be generated. If the **Descriptor** list consists of too many descriptors, then viewing all the descriptors and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Descriptor** list. This will expand the **Descriptor** list so that you can view almost all the descriptors in a single interface and select the ones for which the report is to be generated.

9. To add the specification, click on the **Add** button. A separate entry for every chosen **Component** is then added as shown in Figure 7.13. Similarly, details pertaining to multiple tests/metrics can be added to this list box. To remove a specification, simply click on the check box corresponding to the specification, and click the button.
10. Next, pick and choose the specifications that need to participate in the analysis by clicking on the check box corresponding to every specification. In our case, all the listed entries are to be compared. Therefore, just click on the topmost check box in the column of check boxes to automatically select all the specifications at one shot.
11. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

Note

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

12. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick the measures that are to be compared. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 7.15). The steps below discuss each of these settings and how they can be customized.

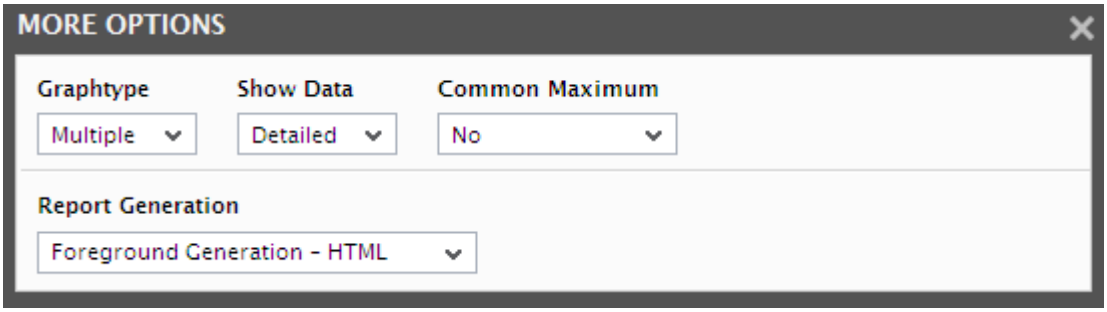


Figure 7.15: The default settings for generating a Comparison Reports - Tests

13. From Figure 7.15, select the **Graph Type** . To view a single graph that plots the values for all the selected components, select the Single option. If individual graphs for each of the selected components need to be viewed, then select the **Multiple** option (see Figure 7.15).

14. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information base comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 7.15. By default, the **Detailed** option is selected in Figure 7.15 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

    - Login to the eG administrative interface as 'admin'.
    - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
    - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

15. Typically, if the values of all the measures chosen for comparison are plotted in a single graph - i.e., if **Graph Type** is set to **Single** - then eG Enterprise automatically computes a maximum value for that graph based on the values reported by all the measures. However, if individual graphs are to be generated for each measure being compared - i.e., if **Graph Type** is set to **Multiple** - then, the maximum value will differ across graphs. This is because, in the case of the latter, by default, the maximum value for a graph is determined based on the values reported by a single measure during a specified timeline. This is why, the **Common Maximum** flag is set to **No** by default, if **Graph Type** is **Multiple**. The key limitation of having a maximum value per graph is the absence of a common basis for comparison. For instance, if you are comparing disk space usage across partitions using multiple graphs, you may find that the graph for disk C, where usage has varied between 60-80%, will have 80 as the maximum value, and the graph for disk D, where usage has varied between 40-50%, will have 50 as the maximum value. A quick look at these graphs may not instantly reveal which disk partition is experiencing a space crunch, as there will be no single threshold for comparison. Therefore, to effectively compare across graphs, and to be able to accurately isolate performance issues, you can set a common maximum value for all graphs displayed in this page. To achieve this, you need to set the **Common Maximum** flag to **Yes**. This common maximum value can be auto-computed by eG Enterprise or can be user-configured. To auto-compute the maximum value, set the **Auto Maximum** flag to **Yes**. By default, the **Auto Maximum** flag is set to **No** and if you want to specify a value of your choice as the common maximum value across graphs, then, proceed to provide a specific value in the **Max Value** field.

16. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

17. Finally, click on the **Run Report** button to generate the report.
18. Graphs depicted by Figure 7.16 will then appear.

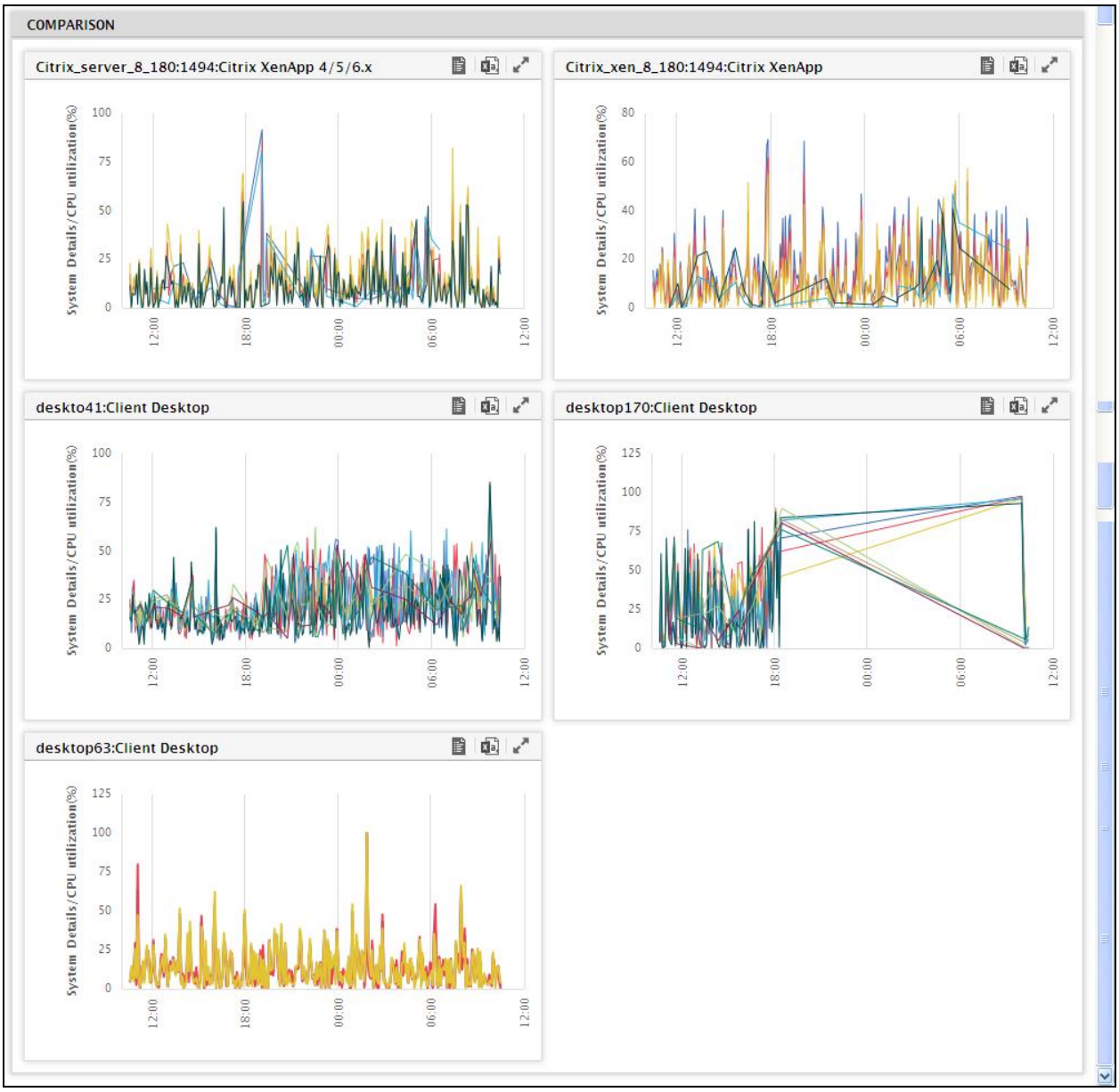


Figure 7.16: A comparison report displaying individual graphs for every chosen component

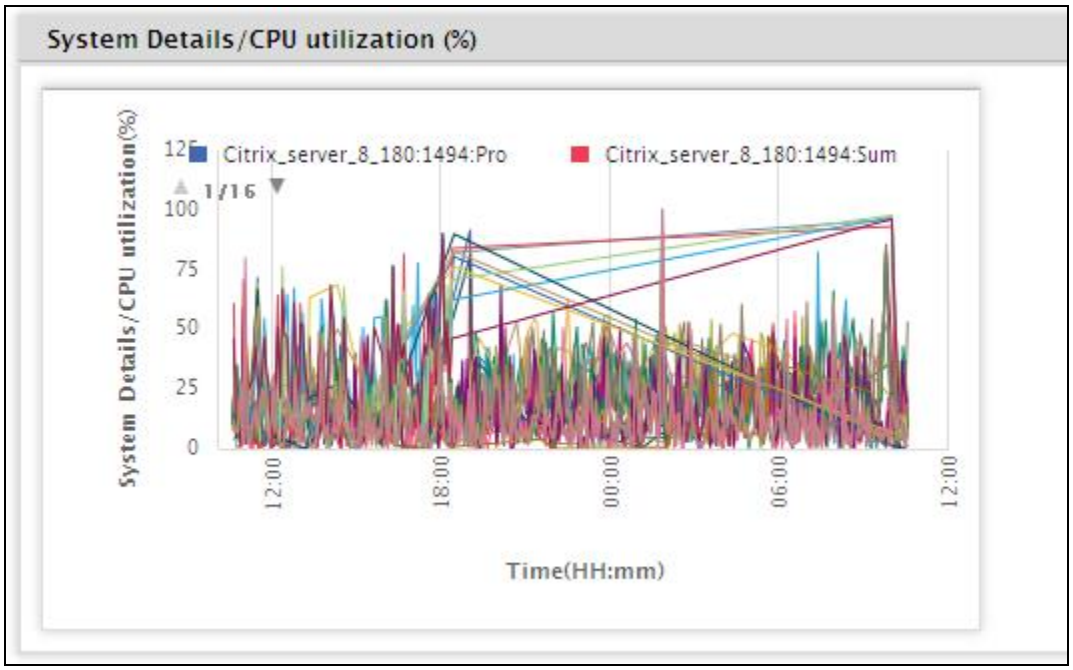


Figure 7.17: A single graph comparing the CPU utilization across components

19. The graph in Figure 7.16 will appear if the **Graph Type** chosen is **Multiple**. The graph in Figure 7.17 will appear if the **Graph Type** chosen is **Single**.

7.3 Top N Reports

Using the **Top N Reports** offered by eG Enterprise, administrators can rank components/descriptors for every metric collected by the eG Enterprise system. The report also reveals the best/worst players in a particular performance area, thereby bringing to light components that are problem-prone, and which hence require continuous attention.

For example, to view the top 10 components with incoming traffic flow, do the following:

1. Select the **Top – N Analysis** option from the **Comparison Reports** node of the **REPORTS BY FUNCTION** tree.
2. Next, select a filter criterion from the **Report for** list box. In large environments comprising of hundreds of components, users often find it difficult to choose a few specific components from the endless component list, for drawing performance comparisons. Therefore, to enable users to quickly and easily pick the components to be compared, the **Report for** list box provides users with multiple filter options. Selecting an option from this list provides users with a smaller component window to choose from. The options provided by the **Report for** list box are discussed hereunder:
   - **Component**: Select this option to choose the components for comparison from across all the managed components in the environment
   - **Service**: Select this option if the components to be compared are involved in the delivery of a business service. Then, pick the **Service**.
   - **Segment**: Choose this option if the components to be compared are part of a segment. Then, select the **Segment**.
   - **Zone**: Pick this option to compare the performance of components that are included in one/more zones. Then, by selecting an option from the **Include Subzones** list, indicate whether the **Components** list should include components in the sub-zones of the chosen zone as well.

As our example seeks to determine the top incoming network traffic consuming customers from across all components in the infrastructure, select **Component** from the **Report for** list.

3. Next, choose between the **Metrics** and **Test** options from the **Select by Criteria** list. If you select the **Test** option, you will be expected to select a **Test**, then the **Measure** for which a **Top-N** list is to be generated, and finally, the **Components** in the infrastructure that will be participating in the evaluation. In the case of our example therefore, you will first have to select **Network Traffic** test, then choose the **Incoming traffic** measure, and finally select one/more **Components** displayed in the **Components** list (see Figure 7.18). If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. A **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and **Select** the ones to be included in the top-n analysis easily.

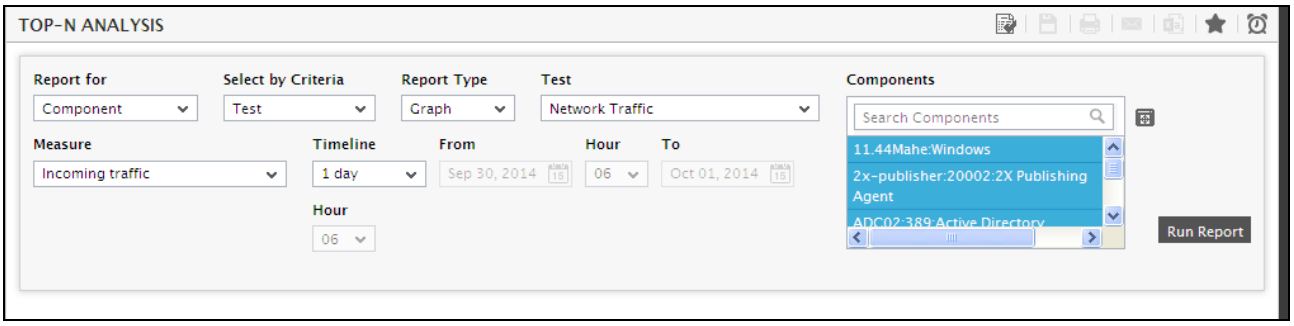


Figure 7.18: Selecting the Test, Measure, and Components to be compared

4. On the other hand, the **Metrics** option, if chosen from the **Select by Criteria** list, offers pre-defined test/measure combinations. When this option is chosen, you will see a pre-configured list of metrics displayed. Instead of selecting a specific **Test** and **Measure** as required by the **Test** option, you can simply select a performance parameter from the **Metrics** list, and then pick the components from which the Top-N Components need to be identified.

5. By default, the **Metrics** list comes with a set of pre-configured parameters. You can expand the **Metrics** list by adding more performance parameters to it. To override the default **Metrics** list, edit the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory), and add a new metric to the **[REPORT_TEMPLATES]** section therein, in the following format:

   <DisplayName>=<InternalTestName>:<InternalMeasureName>

   For example, if you wish to add the *Data in flow* measure of the *Net Flows* test, do the following:

   - First, determine the *Internal name* of the test and measure to be configured. For that, do the following:
     - Open the **eg_lang*.ini** file (from the **<EG_INSTALL_DIR>\manager\config** directory), where * is the language code that represents the language preference that you have set using the **USER PROFILE** page. In this file, the component types, measure names, test names, layer names, measure descriptions, and a wide range of other display information are expressed in a particular language, and are mapped to their eG equivalents.
     - Now, search the **eg_lang*.ini** file for the test name of interest to you. In the case of our example, search for "*Net Flows*".
     - Once it is found, determine which internal eG test it is mapped to. For instance, the eG equivalent of the "*Net Flows*" test is "NetFlowTest".
     - Similarly, you can also find the internal measure name that eG Enterprise uses for referring to the *Data in flow* measure; this will be *Total_Flow_Data*.

- Now that the eG internal names have been identified, proceed to configure the metric in the following manner:

  Net flow=NetFlowTest: Total_Flow_Data

  The DisplayName, *Net flow*, will be added to the **Metrics** list of Figure 7.18.

6. Next, choose a **Report Type** (**Graph** or **Data**). The default **Report Type** is **Graph**. A **Graph** report graphically represents the measure data.

7. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

8. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick an option from the **Components** list. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS drop down window**. The steps below discuss each of these settings and how they can be customized.

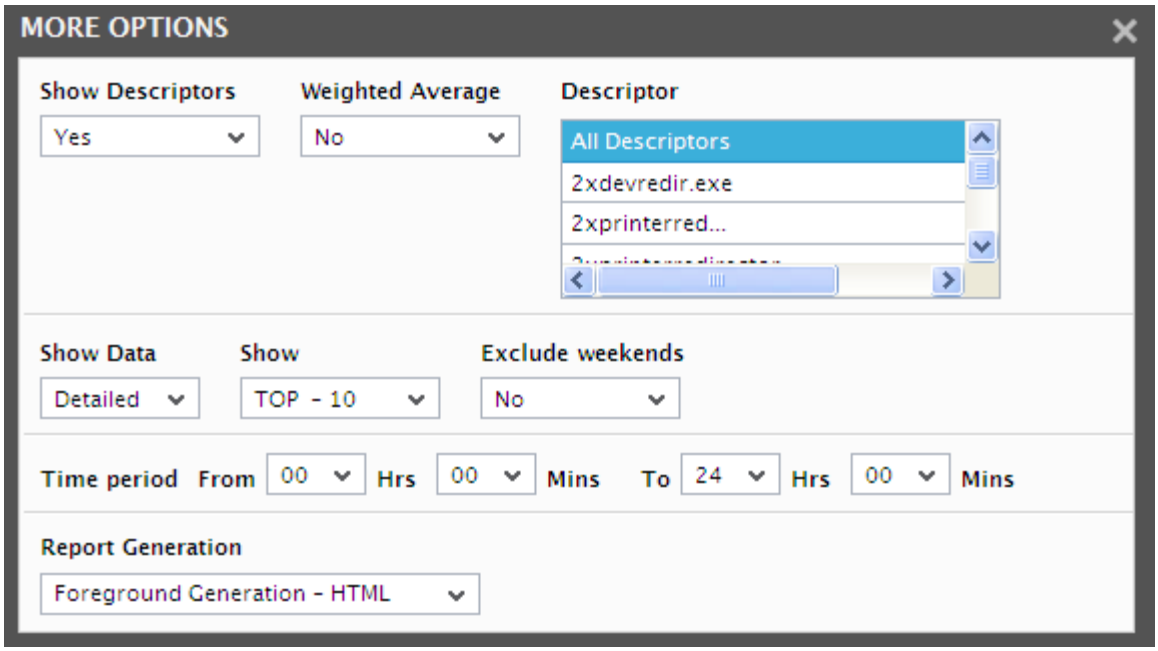


Figure 7.19: The default settings for generating a Top – N Analysis report

9. Form Figure 7.19, enable the **Show Descriptors** flag if the descriptors of the chosen test should also be included in the **TOP-N** analysis.

10. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the Trend option from the **Show Data** field in Figure 7.19. By default, the **Detailed** option is selected in Figure 7.19 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

    - Login to the eG administrative interface as 'admin'.
    - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
    - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini** file.
  - For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **Run Report button** to generate the report, a message box appears (see Figure 5.7) informing you that only the **Trend** option is permitted.
  - To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **Cancel** button.

Note

11. If the **Show Descriptors** flag is set to **Yes**, then, a **Descriptor** list will appear, from which you can pick the descriptors that you want the **TOP-N** report to compare. To include all the descriptors that the chosen test/metric supports in the top-n analysis, select the **All Descriptors** option. If the **Descriptor** list consists of too many descriptors, then viewing all the descriptors and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Descriptor** list. A **DESCRIPTOR** pop up window will then appear using which you can view almost all the descriptors in a single interface and select the ones to be included in the **TOP-N** analysis easily.
12. Using the **Weighted Average** flag, you can indicate how the **Avg** value is to be computed for a chosen measure for the purpose of this report. The status of the **Weighted Average** flag is relevant only if the **Test** chosen is a descriptor-based test, and the descriptors are dynamic in nature. For instance, the *Net flows* test in our example auto-discovers the net flows that are currently active on a Cisco router. For each net flow (i.e., source IP - destination IP pair) so discovered, the test reports a variety of statistics. Unlike descriptors such as disk partitions or processors that rarely change, the net flows are dynamic descriptors, which may change often; in other words, a net flow that is active on the network now, may not communicate at all during the next measurement period. The *Net flows* test will neither report metrics for the inactive descriptors nor display it in the eG monitoring console. This is why, net flows are considered 'dynamic descriptors'.

By default, the **TOP-N** report compares the *Avg* value of the chosen measure across all selected descriptors. Since the **Weighted Average** flag is set to **No** by default, this *Avg* is computed as the ratio of the sum total of the measure values reported by a descriptor during the given timeline and the total number of times the test ran during the same timeline. In case of dynamic descriptors however, the *Avg* values so computed may not reveal the 'true picture of performance'. This is because, the test may not discover or report metrics for dynamic descriptors throughout a given timeline. For example, take the case of the *Net flows* test. Say, the test auto-discovered two net flows - namely, 'A' and 'B' - during its first measurement period; both net flows registered a *Data in Flow* of 3 MB and 8 MB respectively. Assume that the second time the *Net flows* test ran, it captured 5 MB of data in net flow 'A'. Net flow 'B' however was inactive during the second measurement period, and hence, was not discovered at all. If the **Weighted Average** flag is set to **No** by default, then, the **TOP-N** report will plot the *Avg* value of 4 MB (3+5=8/2=4) for net flow 'A' and 4 MB (8/2=4) again for net flow 'B'. If you notice, unlike net flow 'A', where 8 MB of data was transacted over a period of time, in case of net flow 'B', 8 MB of data was transacted at one shot! Logically therefore, net flow 'B' has to be ranked above net flow 'A' in terms of data in flow. However, since the default *Avg* value computation does not clearly bring out this difference, both net flow 'A' and 'B' are treated at par in the **TOP-N** report! This is why, in case of dynamic descriptors, you may want to set the **Weighted Average** flag to **Yes**. In this case, the eG Enterprise system expresses *Avg* as the ratio of the sum total of the measure values reported by a descriptor during a given timeline and the 'total number of times that descriptor was active' during the same timeline. This implies that if the **Weighted Average** flag is set to **Yes** in the net flow example above, the *Avg* value for net flow 'A' will continue to be 4 (3+5=8/2=4), but the same for net flow 'B' will be 8 MB (8/1=8). In the **TOP-N** report therefore, net flow 'B' will be placed above net flow 'A', thereby accurately pointing you to the top communicators over the network.

13. To exclude weekends (Saturdays and Sundays) from the period of consideration, select the **Yes** option against **Exclude weekends**.
14. To view the Top-10 net flows, select Top-10 from the **Show** list. By default, the Top-<maximum number of active descriptors for the test> will be the option chosen here - i.e., if this test takes a maximum of 5 descriptors, then the **Top-5** option will be selected here by default.

The options to be listed in the **Show** list can be configured in the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. To achieve this, set the **ShowTop** parameter in the **[INFOS]** section of this list to a specific numeric value. For example, if you set **ShowTop** to 10, then the **Show** list will display the following options: *Top-10, Top-2, Top-5, Last-10, Last-2,* and *Last-5*.

15. Next, specify the report duration against **Time period**.
16. Next, indicate the type of graphs to be generated in the report page - whether 3D or 2D - by choosing the appropriate option from the **Graph** list. The default selection in this list is determined by the **Show reporter graphs in 3D** flag in the **MONITOR SETTINGS** page of the eG administrative interface. If this flag is set to **Yes**, then the **3D** option will be selected by default in the **Graph** list. If this flag is set to **No**, then the default selection in the **Graph** list will be **2D**.
17. Finally, click the **Run Report** button to generate the report.
18. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and

reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

19. In the case of our example, if the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke a bar chart depicting the Top-10 consumers of incoming traffic, and the average **Data** in the incoming traffic flow (see Figure 7.20). If the **Weighted Average** flag is set to **Yes**, then for the dynamic net flow descriptors, this average will be calculated as the ratio of the sum total of the values reported by the Data in flow measure for a net flow during the given timeline and the total number of times that net flow was active on the network during the same timeline.

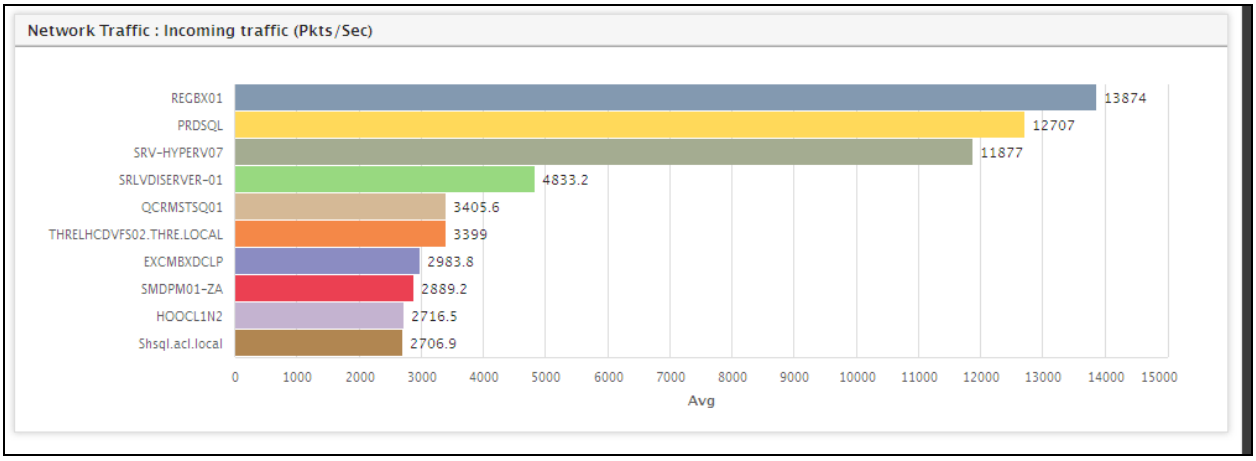


Figure 7.20: A Top N Graph Report where the Weighted Average flag is set to 'Yes'

20. If the **Weighted Average** flag is set to **No** on the other hand, then for the dynamic descriptors, this **average** will

be calculated as the ratio of the sum total of the values reported by the *Data in flow* measure for a net flow during the given timeline and the total number of times the *Net flows* test ran during the same time line (see Figure 7.21).

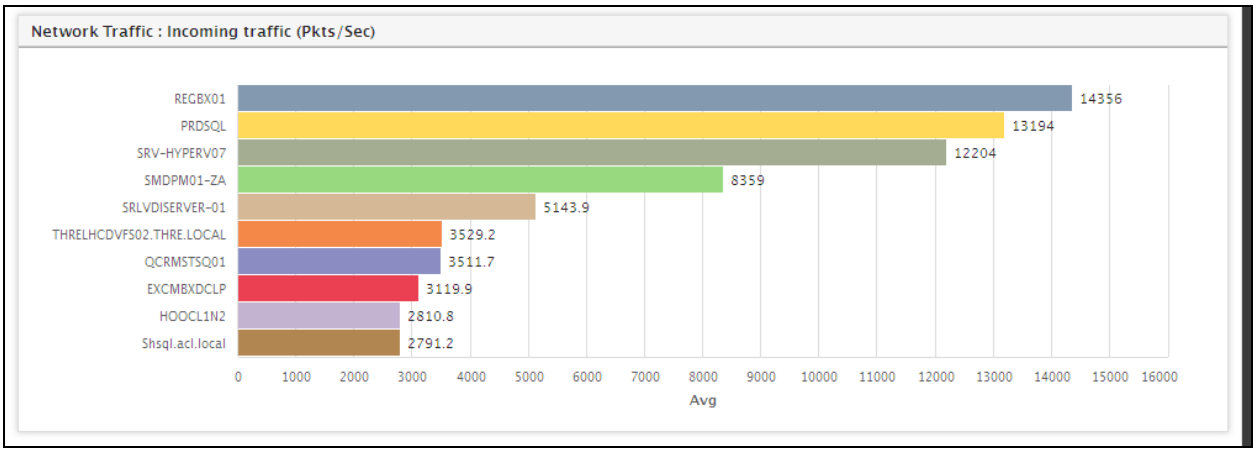


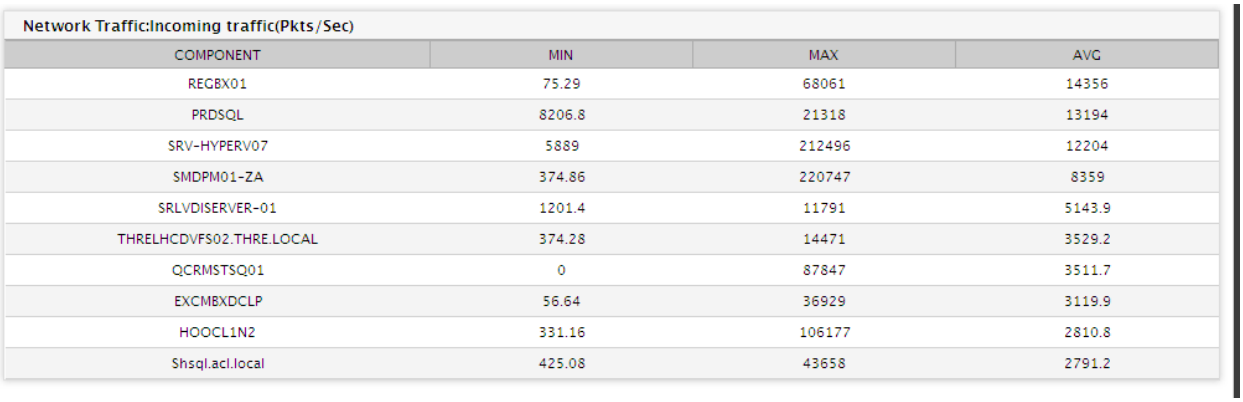
Figure 7.21: The Top-N Graph report where the Weighted Average flag is set to 'No'

21. In a **Data** report, on the other hand, the configured details are presented in a tabular format. Therefore, if the **Report Type** is **Data**, then a report that lists the minimum, maximum, and average values for the Top-10 net flows on the chosen router will appear (see Figure 7.22).

Network Traffic:Incoming traffic(Pkts/Sec)

COMPONENT	MIN	MAX	AVG
REGBX01	75.29	68061	13874
PRDSQL	8206.8	21318	12707
SRV-HYPERV07	5889	212496	11877
SRLVDISERVER-01	1201.4	11791	4833.2
QCRMSTSQ01	0	87847	3405.6
THRELHCDVFS02.THRE.LOCAL	374.28	14471	3399
EXCMBXDCLP	56.64	36929	2983.8
SMDPM01-ZA	374.86	220747	2889.2
HOOCL1N2	331.16	106177	2716.5
Shsql.acl.local	425.08	43658	2706.9

Figure 7.22: A Top N Data Report where the Weighted Average flag is set to 'Yes'



Network Traffic:Incoming traffic(Pkts/Sec)

COMPONENT	MIN	MAX	AVG
REGBX01	75.29	68061	14356
PRDSQL	8206.8	21318	13194
SRV-HYPERV07	5889	212496	12204
SMDPM01-ZA	374.86	220747	8359
SRLVDISERVER-01	1201.4	11791	5143.9
THRELHCDVFS02.THRE.LOCAL	374.28	14471	3529.2
QCRMSTSQ01	0	87847	3511.7
EXCMBXDCLP	56.64	36929	3119.9
HOOCL1N2	331.16	106177	2810.8
Shsql.acl.local	425.08	43658	2791.2

Figure 7.23: A Top N Data Report where the Weighted Average flag is set to 'No'

22. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report button** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the **PDF** icon in that page.

8

Measurement Snapshot Reports

The **Measurement Snapshots** feature of the eG Reporter enables users to perform effective reactive analysis. Sometimes, while performing a routine monitoring exercise, some administrators might have become aware of a problem only after a few hours of its occurrence. In some other cases, administrators might want to know all that had transpired in the monitored environment during a brief period of their absence. The Measurement Snapshots report feature of the eG Reporter helps such administrators perform a post-mortem procedure on the monitored environment, analyze the state of the environment during the designated period, and diagnose the root-cause of problems that had existed during that period.

Unlike other reports offered by the eG Reporter, which represent information graphically, the **Measurement Snapshot Reports**, by default, provide the information as neatly tabulated data to enhance readability and understandability.

Measurement Snapshot reports are of two types, namely: **Components** and **Tests**.

8.1 Snapshot Reports - Component

If the **Analysis by Component** option is chosen, the user can generate and view key information pertaining to a single/multiple tests associated with a chosen component. For example, to know how effectively a Microsoft SQL server had performed during a particular period, do the following:

1. Select the **Analysis by Component** option from the **Measurement Snapshot** node of the **REPORTS BY FUNCTION** tree.
2. Figure 8.1 will then appear.
3. Administrators of large IT infrastructures, which are characterized by hundreds of components, may find it difficult to pick and choose the components for which a report is to be generated; this is because, in such environments, the **Components** list in this page will be populated with a large number of components, which would naturally make component selection tough. To enable administrators of such environments to quickly locate the components of interest to them and swiftly generate the reports, eG Enterprise provides a **Report For** list that consists of a variety of filter options. By default, the **Component** option is chosen from this list (see Figure 8.1) - this indicates that all the managed components of a chosen type will be available for selection in the **Component** list by default. In addition to this, the **Report For** list provides the following filter options as well:
    - **Service**: If the component for which a report is to be generated is involved in the delivery of a particular service, then pick this option from the **Report For** list. Doing so will invoke a **Service** list from which a service name is to be chosen. Upon selection of a service, the component types that are part of the service will populate the **ComponentType** list in this page. Once you pick a component type, all components of that type, which are engaged in the delivery of the chosen service, will be displayed as candidates for selection in the **Component** list. If there are still too many components in the list to choose from, you can narrow your search further by using the **Filter by** text box. Specify the whole/part of the component name to search for in this text box, and click the right-arrow button next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

- **Segment**: If the components for which a report is to be generated is part of a segment, pick the **Segment** option from the **Report For** list. Then, select the segment of interest to you from the **Segment** list. This will populate the **ComponentType** list with the types of components that are part of the chosen segment. If you select a component type from the **ComponentType** list, then, all components of that type, which are part of the chosen segment, will be displayed in the **Component** list for selection. If there are still too many components in the list to choose from, you can narrow your search further by using the **Filter by** text box. Specify the whole/part of the component name to search for in this text box, and click the right-arrow button next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.
- **Zone**: If the components for which a report is to be generated is part of a zone, pick the **Zone** option from the **Report For** list. To include sub-zones also in your search for components, set the **Include SubZones** flag to **Yes**. Then, select the zone of interest to you from the **Zone** list. This will populate the **ComponentType** list with the types of components that are part of the chosen zone. If you select a component type from the **ComponentType** list, then, all components of that type, which are part of the chosen zone, will be displayed in the **Components** list for selection. If there are too many components in the list to choose from, you can narrow your search further by using the **Filter by** text box. Specify the whole/part of the component name to search for in this text box, and click the right-arrow button next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

4. To view the data pertaining to a Microsoft SQL server, select the component from the **Component** list box of Figure 8.1. If you have too many components to choose from, you can narrow your search further by using the **Filter by** text box. Specify the whole/part of the component name to search for in this text box, and click the right-arrow button next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

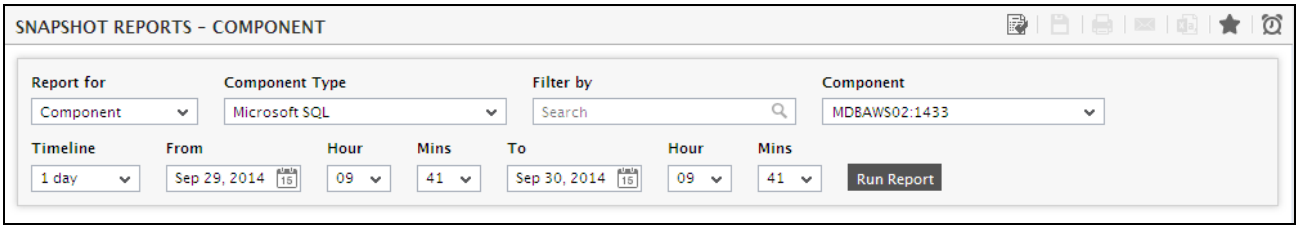


Figure 8.1: Generating a Snapshot report for a chosen component

5. Next, using the **Timeline** option, specify the period to which the snapshot report should pertain.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **RUN REPORT BUTTON** soon after you pick a **Component**. However, if you want to view and then alter these settings (if required), click on the button. The **MORE OPTIONS** drop down window will then appear with the default settings as shown in Figure 8.2. The steps below discuss each of these settings and how they can be customized.

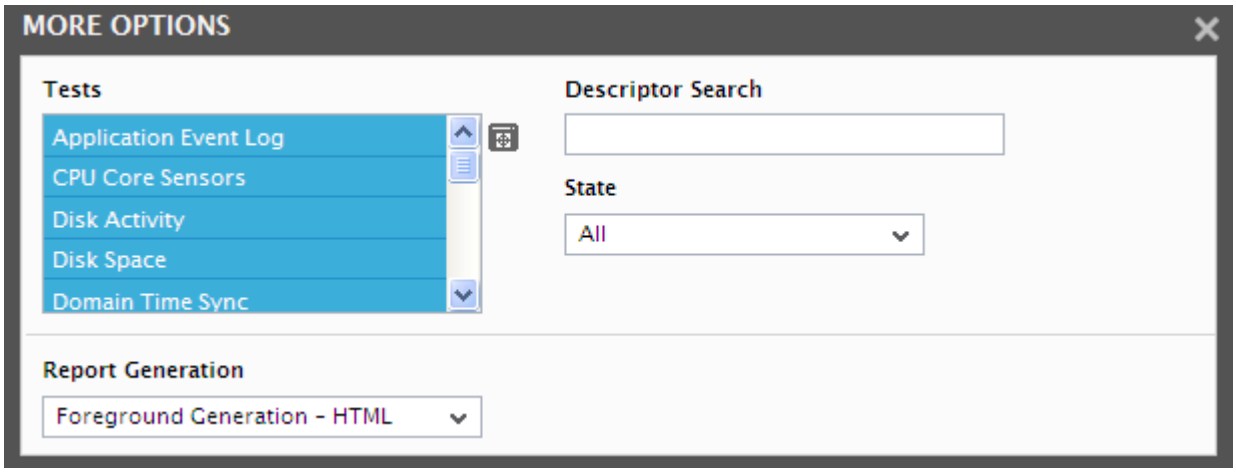


Figure 8.2: The default settings for generating a Snapshot report for a chosen component

7. Now, select the test/tests for which a snapshot report is to be generated. Since our example involves assessment of the overall performance of the chosen component, select all the tests from the **Tests** list (see Figure 8.2). If the **Tests** list consists of too many tests, then viewing all the tests and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Tests** list. This will expand the **Tests** list in the **Tests** pop up window (see Figure 8.3) using which you can view almost all the tests in a single interface and select the ones for which the report is to be generated.

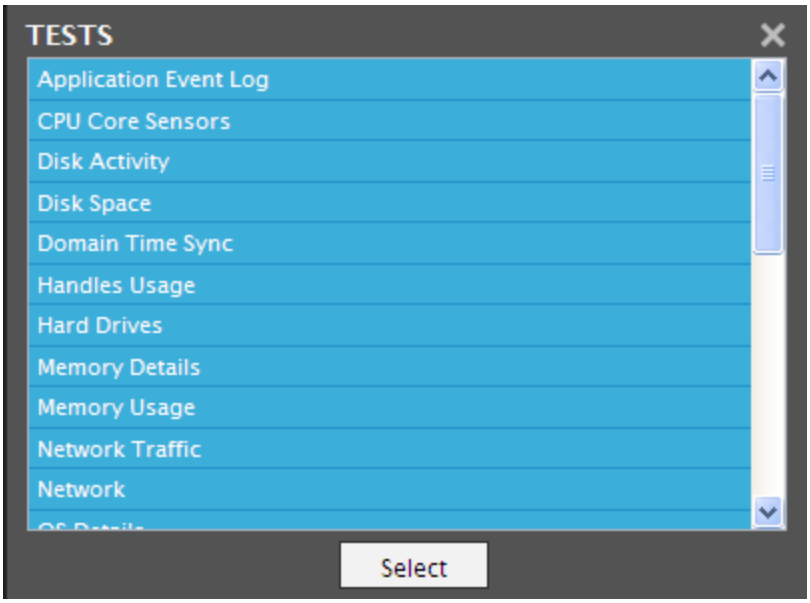


Figure 8.3: The Tests pop up window

8. If one/more of the chosen tests support descriptors, then, you can configure the snapshot report to display the historical information related to specific descriptors alone. For this, specify the whole/part of the descriptor name to search for in the **Descriptor Search** text box. The report in this case will display the historical measures of only those tests that support descriptors with names that embed the specified **Descriptor Search** string.

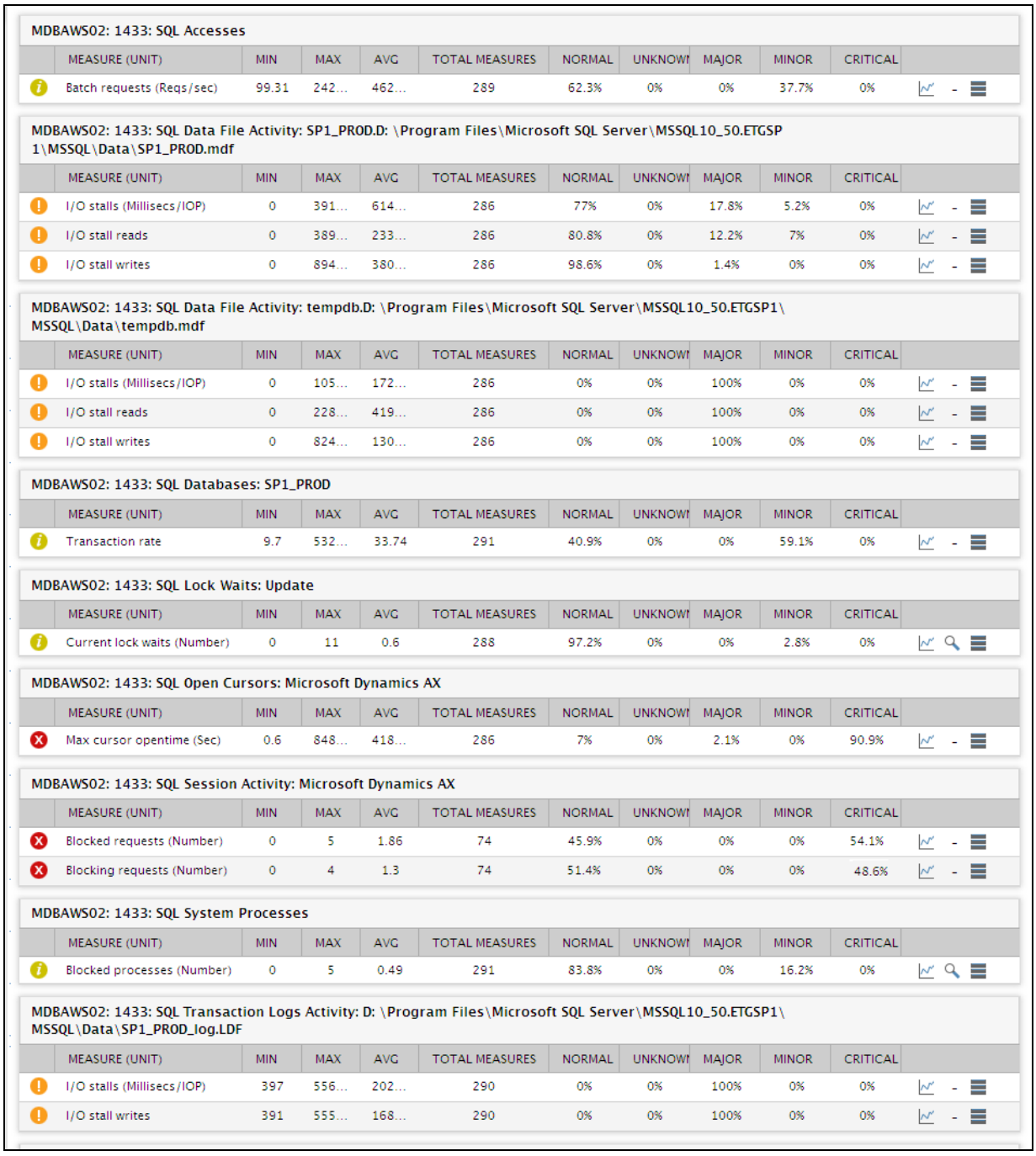
9. By default, the snapshot report displays all the metrics that were reported by the chosen tests during the given timeline, regardless of the state of the measures. This is why, the *All* option is chosen by default from the **State** list. If need be, you can have the report display the metrics of a particular state alone or a combination of states. For that, pick an option from the **State** list. The options provided by this list are as follows:

   - Critical & Major
   - Critical & Major & Minor
   - Critical
   - Major
   - Minor
   - Abnormal - if this option is chosen, then, measures that are of Critical, Major, Minor, and Unknown states will be displayed.
   - Normal
   - Unknown

10. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

11. Finally, click on the **Run Report** button in Figure 8.1.
12. Figure 8.4 displays a snapshot report that focuses on only those measures that were in an **Abnormal** state during the chosen timeline.



MDBAWS02: 1433: SQL Accesses

MEASURE (UNIT)	MIN	MAX	AVG	TOTAL MEASURES	NORMAL	UNKNOWN	MAJOR	MINOR	CRITICAL
Batch requests (Reqs/sec)	99.31	242...	462...	289	62.3%	0%	0%	37.7%	0%

MDBAWS02: 1433: SQL Data File Activity: SP1_PROD.D: \Program Files\Microsoft SQL Server\MSSQL10_50.ETGSP1\MSSQL\Data\SP1_PROD.mdf

MEASURE (UNIT)	MIN	MAX	AVG	TOTAL MEASURES	NORMAL	UNKNOWN	MAJOR	MINOR	CRITICAL
I/O stalls (Millisecs/IOP)	0	391...	614...	286	77%	0%	17.8%	5.2%	0%
I/O stall reads	0	389...	233...	286	80.8%	0%	12.2%	7%	0%
I/O stall writes	0	894...	380...	286	98.6%	0%	1.4%	0%	0%

MDBAWS02: 1433: SQL Data File Activity: tempdb.D: \Program Files\Microsoft SQL Server\MSSQL10_50.ETGSP1\MSSQL\Data\tempdb.mdf

MEASURE (UNIT)	MIN	MAX	AVG	TOTAL MEASURES	NORMAL	UNKNOWN	MAJOR	MINOR	CRITICAL
I/O stalls (Millisecs/IOP)	0	105...	172...	286	0%	0%	100%	0%	0%
I/O stall reads	0	228...	419...	286	0%	0%	100%	0%	0%
I/O stall writes	0	824...	130...	286	0%	0%	100%	0%	0%

MDBAWS02: 1433: SQL Databases: SP1_PROD

MEASURE (UNIT)	MIN	MAX	AVG	TOTAL MEASURES	NORMAL	UNKNOWN	MAJOR	MINOR	CRITICAL
Transaction rate	9.7	532...	33.74	291	40.9%	0%	0%	59.1%	0%

MDBAWS02: 1433: SQL Lock Waits: Update

MEASURE (UNIT)	MIN	MAX	AVG	TOTAL MEASURES	NORMAL	UNKNOWN	MAJOR	MINOR	CRITICAL
Current lock waits (Number)	0	11	0.6	288	97.2%	0%	0%	2.8%	0%

MDBAWS02: 1433: SQL Open Cursors: Microsoft Dynamics AX

MEASURE (UNIT)	MIN	MAX	AVG	TOTAL MEASURES	NORMAL	UNKNOWN	MAJOR	MINOR	CRITICAL
Max cursor opentime (Sec)	0.6	848...	418...	286	7%	0%	2.1%	0%	90.9%

MDBAWS02: 1433: SQL Session Activity: Microsoft Dynamics AX

MEASURE (UNIT)	MIN	MAX	AVG	TOTAL MEASURES	NORMAL	UNKNOWN	MAJOR	MINOR	CRITICAL
Blocked requests (Number)	0	5	1.86	74	45.9%	0%	0%	0%	54.1%
Blocking requests (Number)	0	4	1.3	74	51.4%	0%	0%	0%	48.6%

MDBAWS02: 1433: SQL System Processes

MEASURE (UNIT)	MIN	MAX	AVG	TOTAL MEASURES	NORMAL	UNKNOWN	MAJOR	MINOR	CRITICAL
Blocked processes (Number)	0	5	0.49	291	83.8%	0%	0%	16.2%	0%

MDBAWS02: 1433: SQL Transaction Logs Activity: D: \Program Files\Microsoft SQL Server\MSSQL10_50.ETGSP1\MSSQL\Data\SP1_PROD_log.LDF

MEASURE (UNIT)	MIN	MAX	AVG	TOTAL MEASURES	NORMAL	UNKNOWN	MAJOR	MINOR	CRITICAL
I/O stalls (Millisecs/IOP)	397	556...	202...	290	0%	0%	100%	0%	0%
I/O stall writes	391	555...	168...	290	0%	0%	100%	0%	0%

Figure 8.4: The Snapshot report of a chosen component displaying metrics of an Abnormal state

13. If the **Report Generation** mode is set to **Foreground Generation - HTML**, then critical information pertaining to each of the tests executing on the Microsft SQL server will then appear (see Figure 8.4). Such information includes:

    - The Measure name
    - A low watermark of the measure during the specified period
    - A high watermark of the measure during the specified period

- The average measure value
- The total number of measurements
- The percentage of normal, critical, major, minor, and unknown measurements during the specified period

14. The measure name will be prefixed by an indicator of the state of the measure during the specified period. The state can be: Critical, Major, Minor, Normal, and Unknown. eG Enterprise determines the state of a measure during the given period, by applying the following norms:
    - If the **Critical %** of the measure is greater than 0, then the state of the measure is **Critical** ( ).
    - If the **Critical %** of the measure is 0, but the **Major %** is greater than 0, then the state of the measure is **Major** ( ).
    - If the **Critical** and **Major** percentages are 0, but the **Minor %** is greater than 0, then the state of the measure is **Minor** ( ).
    - If the **Critical**, **Major**, and **Minor** percentages are 0, but the **Unknown %** is greater than 50, then the state of the measure is **Unknown** ( )
    - If the **Normal %** is 100%, then the state of the measure is **Normal** ( ).

    For example, take the case of the **Max Cursor opentime** measure of the **SQL Open Cursors** in Figure 8.4 above. In this case, note that though the **Normal %** of the measure is 7%, the state of the measure is **Critical**. This is because, the **Critical %** of the measure is 90.9 (which is greater than 0).
15. Clicking on the button against a measure will invoke a graph of the measure for the stated period.
16. Similarly, clicking on the **Data** button will provide the values that have been plotted on the graph. Here, values that have violated the set thresholds will be highlighted. While a value that has fallen below the threshold will be accompanied by a down arrow icon, the value that has exceeded the threshold will be accompanied by an up arrow icon.
17. Clicking on the icon against a measure will provide you with detailed measures, which throw more light on the indicated problem condition.
18. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

8.2 Tests Snapshot Reports

The **Analysis by Test** option allows users to view the information pertaining to a single/multiple components on which a particular test executes. For example, to assess the availability and resource usage of critical host-level processes across the environment, do the following:

1. Select the **Analysis by Test** option from the **Measurement Snapshot** node of the **REPORTS BY FUNCTION** tree.
2. Figure 8.5 will then appear.

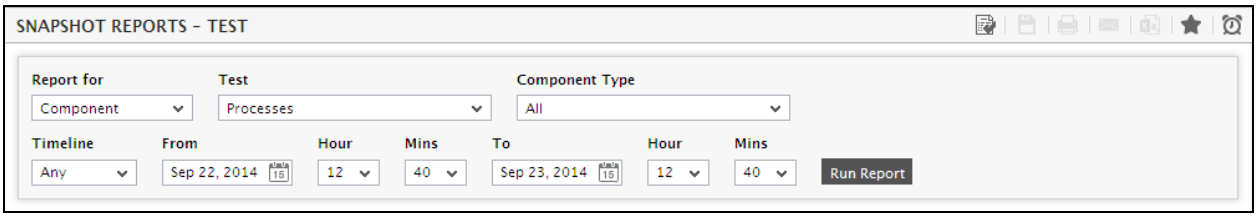


Figure 8.5: Generating a Snapshot report for a chosen test

3. Administrators of large IT infrastructures, which are characterized by hundreds of components, may find it difficult to pick and choose the components for which a report is to be generated; this is because, in such environments, the **Components** list in this page will be populated with a large number of components, which would naturally make component selection tough. To enable administrators of such environments to quickly locate the components of interest to them and swiftly generate the reports, eG Enterprise provides a **Report For** list that consists of a variety of filter options. By default, the **Component** option is chosen from this list (see Figure 8.5) - this indicates that all the managed components of a chosen type will be available for selection in the **Components** list by default. In addition to this, the **Report For** list provides the following filter options as well:

   - **Service**: If the component for which a report is to be generated is involved in the delivery of a particular service, then pick this option from the **Report For** list. Doing so will invoke a **Service** list from which a service name is to be chosen. Upon selection of a service, the component types that are part of the service will populate the **ComponentType** list in this page. Once you pick a component type, all components of that type, which are engaged in the delivery of the chosen service, will be displayed as candidates for selection in the **Components** list (see Figure 8.6). If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

   - **Segment**: If the components for which a report is to be generated is part of a segment, pick the **Segment** option from the **Report For** list. Then, select the segment of interest to you from the **Segment** list. This will populate the **ComponentType** list with the types of components that are part of the chosen segment. If you select a component type from the **ComponentType** list, then, all components of that type, which are part of the chosen segment, will be displayed in the **Components** list for selection (see Figure 8.6). If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

   - **Zone**: If the components for which a report is to be generated is part of a zone, pick the **Zone** option from the **Report For** list. To include sub-zones also in your search for components, set the **Include SubZones** flag to **Yes**. Then, select the zone of interest to you from the **Zone** list. This will populate the **ComponentType** list with the types of components that are part of the chosen zone. If you select a component type from the **ComponentType** list, then, all components of that type, which are part of the chosen zone, will be displayed in the **Components** list for selection (See Figure 8.6). If there are too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.

4. To view the data pertaining to process performance across component types, select **Processes** from the **Tests** list box of Figure 8.7 and select the **All** option from the **ComponentType** list.

5. Next, using the **Timeline** option, specify the period to which the snapshot report should pertain.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **RUN REPORT BUTTON** soon after you pick a **Component Type**. However, if you want to view and then alter these settings (if required), click on the button. The **MORE OPTIONS** drop down window will then appear with the default settings as shown in Figure 8.6. The steps below discuss each of these settings and how they can be customized.

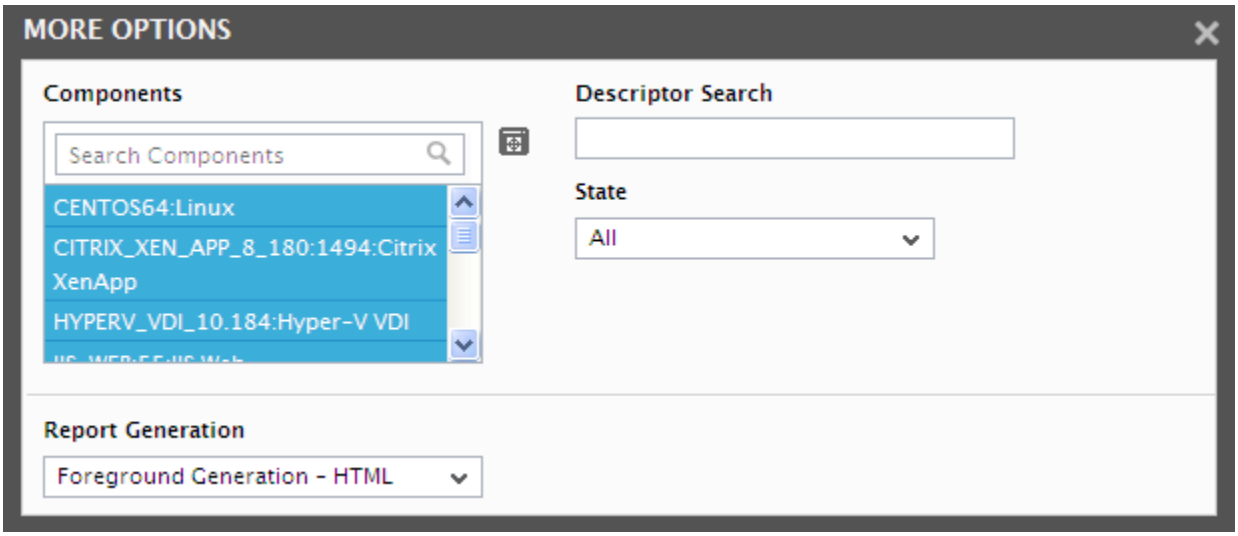


Figure 8.6: The default settings for generating a snapshot report for a chosen test

7. Select the **Components** for which the **Processes** test information is required (see Figure 8.6). If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list.The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.

8. By default, the snapshot report displays all the metrics that were reported by the chosen test during the given timeline, regardless of the state of the measures. This is why, the *All* option is chosen by default from the **State** list. If need be, you can have the report display the metrics of a particular state alone or a combination of states. For that, pick any other option from the **State** list. The options provided by this list are as follows:
   - Critical & Major
   - Critical & Major & Minor
   - Critical
   - Major
   - Minor
   - Abnormal - if this option is chosen, then, measures that are of Critical, Major, Minor, and Unknown states will be displayed.
   - Normal
   - Unknown
9. Figure 8.7 displays a snapshot report that focuses on only those measures that were of a **Critical** state during the chosen timeline.

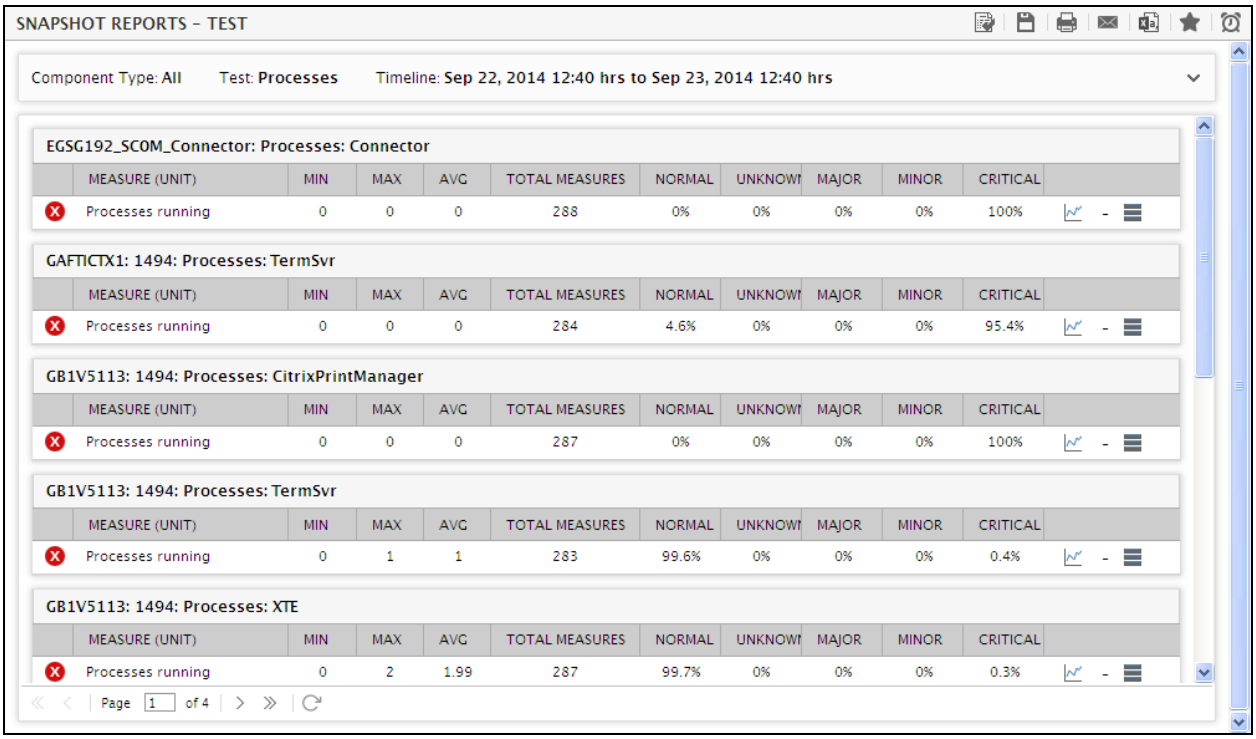

SNAPSHOT REPORTS - TEST
Component Type: All
Test: Processes
Timeline: Sep 22, 2014 12:40 hrs to Sep 23, 2014 12:40 hrs
EGSG192_SCOM_Connector: Processes: Connector
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
Processes running 0 0 0 288 0% 0% 0% 0% 100%
GAFTICTX1: 1494: Processes: TermSvr
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
Processes running 0 0 0 284 4.6% 0% 0% 0% 95.4%
GB1V5113: 1494: Processes: CitrixPrintManager
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
Processes running 0 0 0 287 0% 0% 0% 0% 100%
GB1V5113: 1494: Processes: TermSvr
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
Processes running 0 1 1 283 99.6% 0% 0% 0% 0.4%
GB1V5113: 1494: Processes: XTE
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
Processes running 0 2 1.99 287 99.7% 0% 0% 0% 0.3%
Page 1 of 4

Figure 8.7: The Tests Snapshot report displaying metrics in the Critical state alone

10. You can optionally configure the snapshot report to display the historical information related to specific descriptors alone. For this, specify the whole/part of the descriptor name to search for in the **Descriptor Search** text box (see Figure 8.6). The report in this case will display the historical measures of only those descriptors with names that embed the specified **Descriptor Search** string.
11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is

scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

12. Finally, click on the **Run Report** button in Figure 8.5.
13. If the **Report Generation** mode is set to **Foreground Generation - HTML**, then, clicking on the **Run Report** button will reveal Figure 8.8.

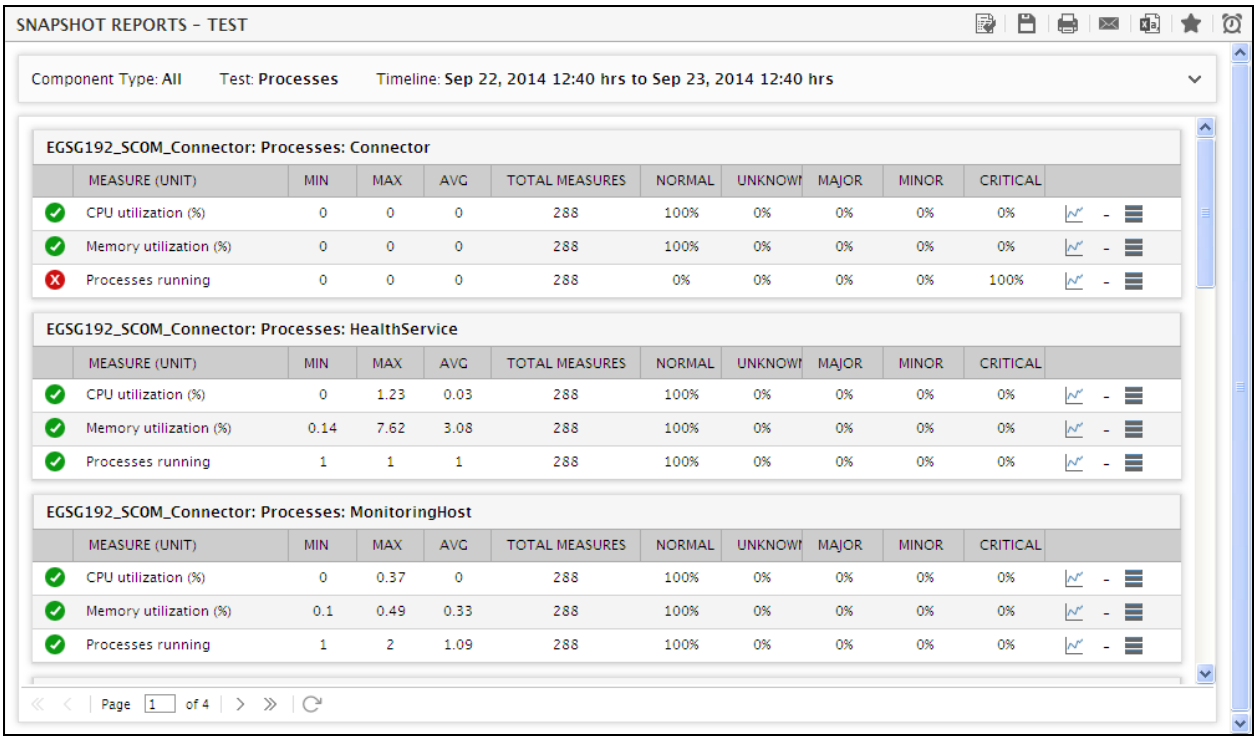

SNAPSHOT REPORTS - TEST
Component Type: All
Test: Processes
Timeline: Sep 22, 2014 12:40 hrs to Sep 23, 2014 12:40 hrs
EGSG192_SCOM_Connector: Processes: Connector
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
CPU utilization (%) 0 0 0 288 100% 0% 0% 0% 0%
Memory utilization (%) 0 0 0 288 100% 0% 0% 0% 0%
Processes running 0 0 0 288 0% 0% 0% 0% 100%
EGSG192_SCOM_Connector: Processes: HealthService
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
CPU utilization (%) 0 1.23 0.03 288 100% 0% 0% 0% 0%
Memory utilization (%) 0.14 7.62 3.08 288 100% 0% 0% 0% 0%
Processes running 1 1 1 288 100% 0% 0% 0% 0%
EGSG192_SCOM_Connector: Processes: MonitoringHost
MEASURE (UNIT) MIN MAX AVG TOTAL MEASURES NORMAL UNKNOWN MAJOR MINOR CRITICAL
CPU utilization (%) 0 0.37 0 288 100% 0% 0% 0% 0%
Memory utilization (%) 0.1 0.49 0.33 288 100% 0% 0% 0% 0%
Processes running 1 2 1.09 288 100% 0% 0% 0% 0%
Page 1 of 4

Figure 8.8: The Snapshot Report for a chosen test

14. The critical information pertaining to the **Processes test** of each of the selected components will then appear (see Figure 8.8). Such information includes

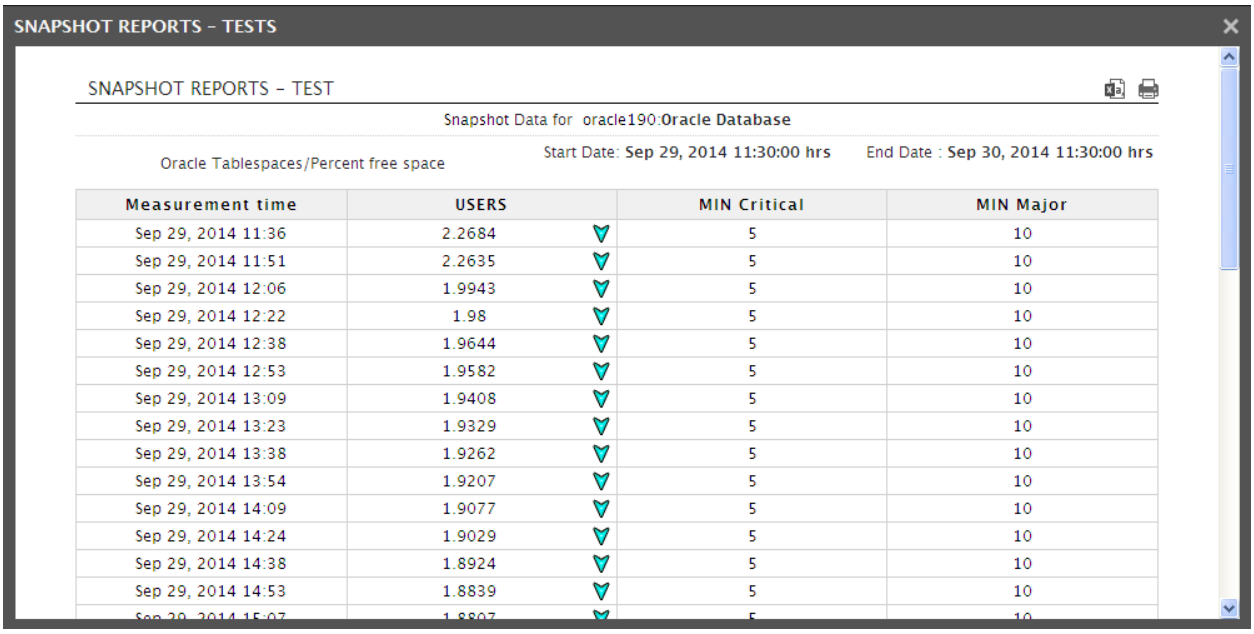
    - The Measure name
    - A low watermark of the measure during the specified period
    - A high watermark of the measure during the specified period
    - The average measure value
    - The total number of measurements
    - The percentage of normal, critical, major, minor, and unknown measurements during the specified period

15. The measure name will be prefixed by an indicator of the state of the measure during the specified period. The state can be: Critical, Major, Minor, Normal, and Unknown. eG Enterprise determines the state of a measure during the given period, by applying the following norms:

    - If the **Critical %** of the measure is greater than 0, then the state of the measure is **Critical** ( ).
    - If the **Critical %** of the measure is 0, but the **Major %** is greater than 0, then the state of the measure is **Major** ( ).
    - If the **Critical** and **Major** percentages are 0, but the **Minor %** is greater than 0, then the state of the measure is **Minor** ( ).
    - If the **Critical**, **Major**, and **Minor** percentages are 0, but the **Unknown %** is greater than 50, then the state of the measure is **Unknown** ( ).
    - If the **Normal %** is 100%, then the state of the measure is **Normal** ( ).

16. Clicking on the button against a measure will invoke a graph of the measure for the stated period.

17. Similarly, clicking on the **Data** button against a measure will provide the values that have been plotted on the graph. Here, values that have violated the set thresholds will be highlighted. While a value that has fallen below the threshold will be accompanied by a down arrow icon, the value that has exceeded the threshold will be accompanied by an up arrow icon (see Figure 8.9).


SNAPSHOT REPORTS – TESTS
SNAPSHOT REPORTS – TEST
Snapshot Data for oracle190:Oracle Database
Oracle Tablespaces/Percent free space
Start Date: Sep 29, 2014 11:30:00 hrs
End Date : Sep 30, 2014 11:30:00 hrs

Measurement time	USERS	MIN Critical	MIN Major
Sep 29, 2014 11:36	2.2684	5	10
Sep 29, 2014 11:51	2.2635	5	10
Sep 29, 2014 12:06	1.9943	5	10
Sep 29, 2014 12:22	1.98	5	10
Sep 29, 2014 12:38	1.9644	5	10
Sep 29, 2014 12:53	1.9582	5	10
Sep 29, 2014 13:09	1.9408	5	10
Sep 29, 2014 13:23	1.9329	5	10
Sep 29, 2014 13:38	1.9262	5	10
Sep 29, 2014 13:54	1.9207	5	10
Sep 29, 2014 14:09	1.9077	5	10
Sep 29, 2014 14:24	1.9029	5	10
Sep 29, 2014 14:38	1.8924	5	10
Sep 29, 2014 14:53	1.8839	5	10

Figure 8.9: Snapshot Data

18. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

Note

Snapshot reports (both **Components** and **Tests**) perform state computations using the metrics reported by the tests during the chosen period.

9

Virtualization Reports

As the virtualization technology helps enterprises greatly in conserving space and resources, the last decade witnessed many enterprises virtualize their mission-critical service offerings, with the hope of transferring the reliability of virtualized platforms to their end-user services. Moreover, the recent rise in the popularity of "virtualism" has resulted in many new platforms invade the virtualization space - the leading players being VMware ESX, Citrix XenServers, Solaris LDoms, Microsoft HyperV, etc. In order to reap the benefits of each distinct technology, enterprises too are deploying more than one virtualization platform, thereby increasing the complexity of their service composition and adding to the administrator's misery! Hence, administrators these days require a solution that can:

- monitor heterogenous virtualized environments efficiently and report sporadic spikes in resource usage;
- help perform effective comparative and time-based analysis of resource usage across physical servers and/or virtual machines on a server, so that problem patterns and problem sources come to light;

In recent times, eG Enterprise has emerged as an undisputed expert in the monitoring and management of a variety of virtualization platforms, namely: VMware ESX, Citrix XenServers, Solaris Containers, Solaris LDoms, and Microsoft Virtual Server. While the solution's In-N-Out monitoring approach captures live the abnormalities in the actual and relative resource usage of VMs, the exclusive **Virtualization** report category that the tool provides enables administrators to perform the following easily and effectively:

- oversee the performance of a physical server or a server farm over time;
- compare the resource usage across physical servers;
- analyze how resource-intensive the VMs on a server are by reviewing its impact on both the physical and allocated resources;

Towards this end, the **Virtualization** category offers the following reports.

9.1 Physical Servers – Hypervisor Overview Report

The **Physical Servers – Hypervisor Overview** report provides deep insights into the performance of a chosen physical server or a server farm during a specified timeline, and enables administrators to figure out the following:

- Is the server adequately sized in terms of resources?
- Which physical server in the farm has been consistently consuming resources excessively?
- Which physical server in the farm hosts the maximum number of VMs?
- Which physical server is the busiest in the farm in terms of disk activity and network traffic handled over time?
- Which physical server in the farm has been the most problem-prone in the given time slot? What were the top problems encountered by that physical server?

Based on the findings of this report, administrators can prudently plan the future capacity of a physical server or server farm.

To generate this report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization ->Physical servers -> Hypervisor Overivew*.

2. Figure 9.1 then appears. For a graphical report, select **Graph** as the **Report Type**.

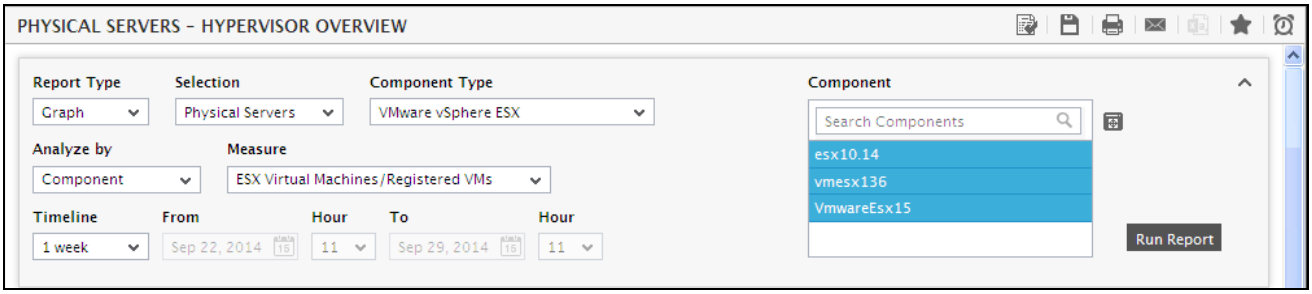


Figure 9.1: Selecting the report criteria for a Physical Servers report

3. To generate a **Physical Servers** report, select **Physical Servers** from the **Selection** list. Selecting the Virtual machines option will lead you to the **Virtual Machines – Overview** report.

4. The **Component Type** list displays all the managed virtual component-types – e.g., *VMware vSphere ESX*, *Citrix XenServer,* etc. For a report on ESX servers, select *VMware vSphere ESX*.

5. Then, select a criterion for analysis from the **Analyze by** list box. Using this report, you can analyze the performance of one/more independent virtualized components, or those that are part of a segment, service, or a zone. This way, you can assess the impact of the performance of the virtual components on a particular service/segment/zone's performance, and accordingly take performance decisions. The options provided by the **Analyze by** list box are discussed hereunder:

   - **Component**: Select this option to choose the component(s) from across all the managed components in the environment. For instance, for a report on the performance of all the managed vSphere/ESX hosts in the environment, select *VMware vSphere ESX* from the **Component Type** list, select **Component** from the **Analyze by** list, and then select all the virtual hosts listed in the **Components** list of Figure 9.1.

   - **Service**: Select this option if the components for which a report is to be generated are involved in the delivery of a business service. Then, select a **Service**.

   - **Segment**: Choose this option if the virtual hosts to be evaluated are part of a segment. Then, pick a **Segment** for analysis.

   - **Zone**: Pick this option for a report on the performance of virtual components that are included in a zone. Then, choose a **Zone**.

6. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. This will expand the **Components** list so that you can view almost all the components in a single interface and select the ones for which the report is to be generated.

7. Typically, for a **Data** report, users can configure the measures that need to feature in the report and the functions (eg., **Avg**, **Max**, etc.) to be applied on them. However, if the **Report Type** chosen is **Graph**, you will be required to select the **Measure** for which the graph is to be generated. For instance, to assess how the managed physical ESX servers in the environment use the CPU resources available to them, choose CPU - Esx/Physical CPU utilization measure from the **Measure** list. The **Graph** report that then appears reveals the top CPU consumers in the chosen component-list.

8. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc.,

or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

9. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Component**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.2). The steps below discuss each of these settings and how they can be customized.

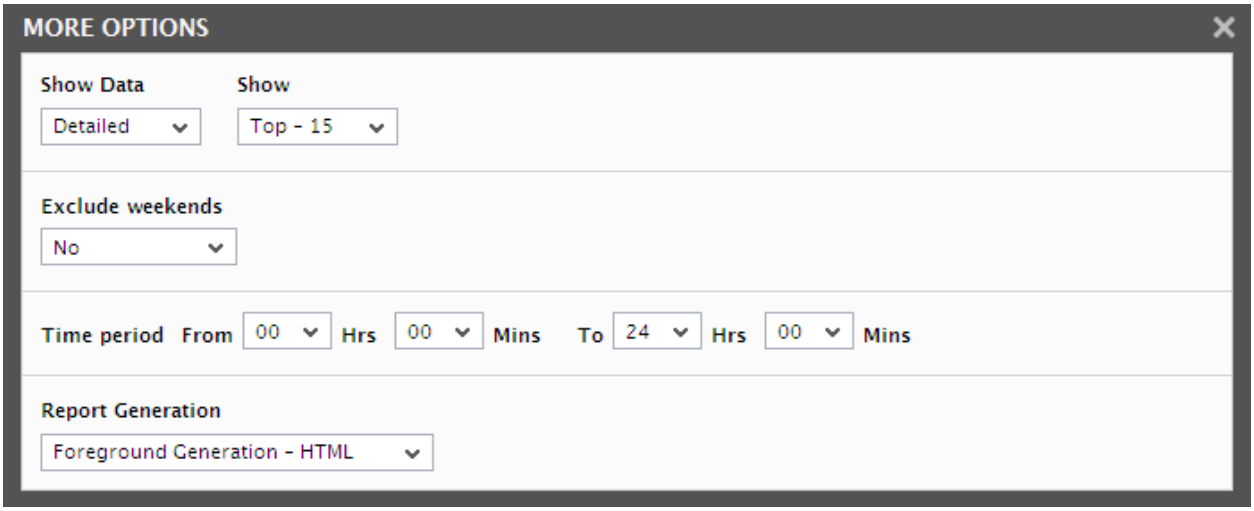


Figure 9.2: The default settings for generating the Physical Servers – Hypervisor Overview Report

10. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy

access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.2. By default, the **Detailed** option is selected in Figure 9.2 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
  - For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
  - To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

11. To indicate how many of the top/least resource users the resulting graph should depict, so as not to clutter the display, select an option from the **Show** list.
12. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.
13. Next, indicate the report **Timeperiod**.
14. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

Note

15. Finally, click the **Run Report** button.
16. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **RUN REPORT** button will invoke Figure 9.3.

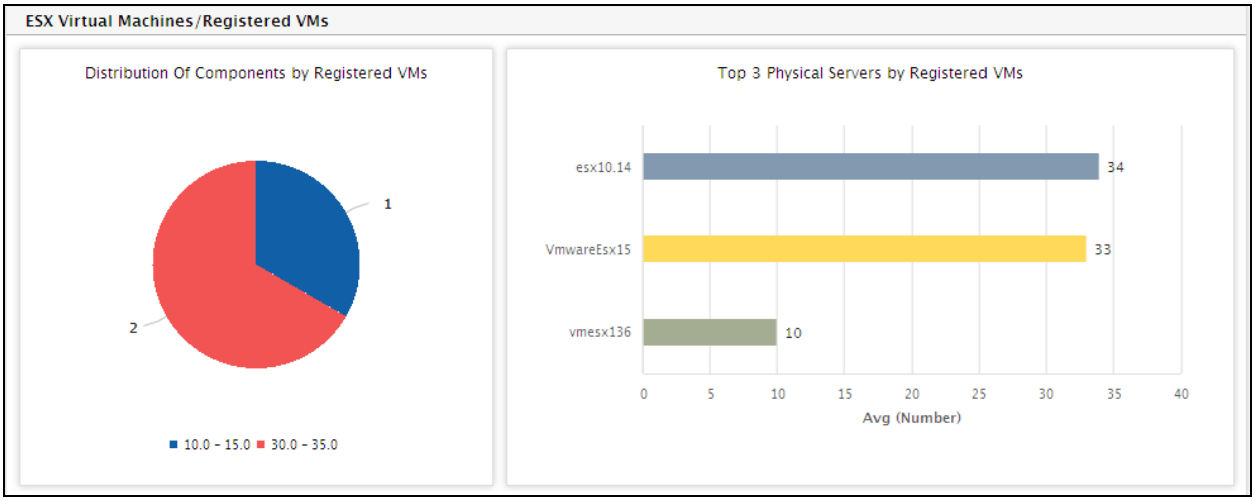


Figure 9.3: A Physical Servers – Hypervisor Overview report

17. If the **Report Type** is **Graph**, then Figure 9.3 will appear comprising of the following:
    - A distribution pie chart that reveals the number of components in different distribution ranges (see Figure 9.3). The distribution ranges are obtained by applying the first of the configured functions for the chosen **Measure**. For instance, assume that *Registered VMs* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of *Registered VMs* in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Registered VMs* - alone is calculated for every component of the chosen component-type. The

resulting pie chart enables administrators to determine, at a glance, which managed physical ESX servers in the environment have been configured with the maximum number of guests. Clicking on a particular slice in the pie chart lists the components that fall within the value range represented by that slice (see Figure 9.4). Against every component name, the actual values for each of the configured functions (both *Avg* and *Max*, in our example), and also the **Health %** of each of the components will be displayed. A zone/segment/service/component-type-level **Summary** of the chosen **Measure** and the **Health %** will also be available.

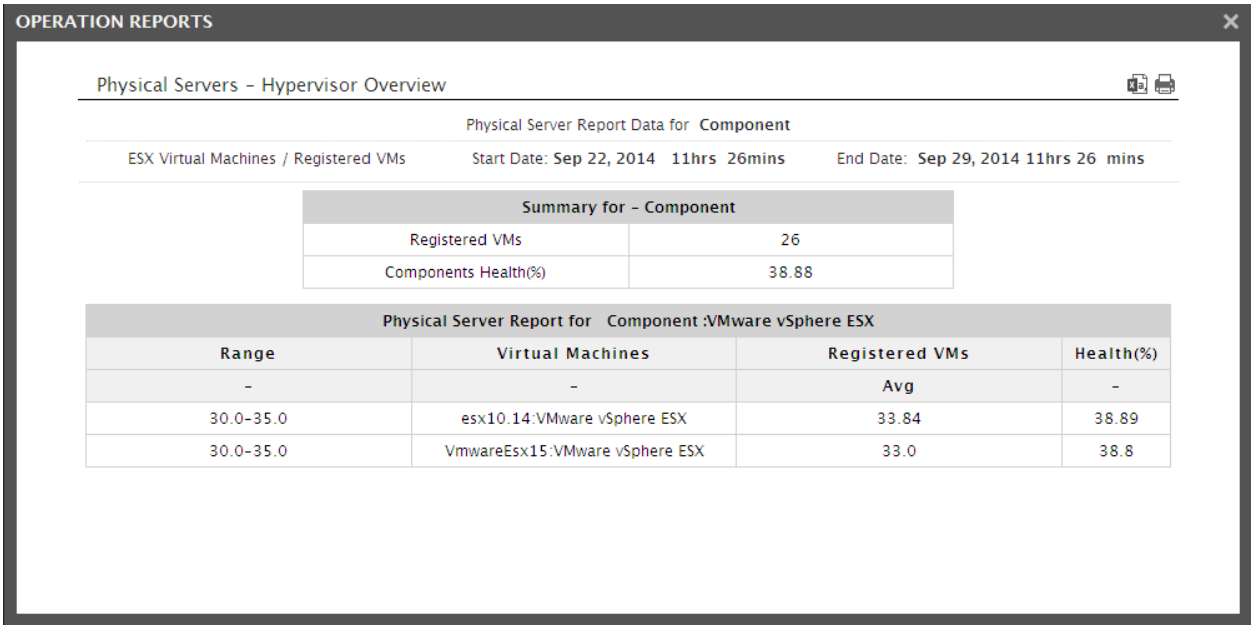

OPERATION REPORTS
Physical Servers - Hypervisor Overview
Physical Server Report Data for Component
ESX Virtual Machines / Registered VMs
Start Date: Sep 22, 2014 11hrs 26mins
End Date: Sep 29, 2014 11hrs 26 mins
Summary for - Component
Registered VMs 26
Components Health(%) 38.88
Physical Server Report for Component :VMware vSphere ESX
Range | Virtual Machines | Registered VMs | Health(%)
- | - | Avg | -
30.0-35.0 | esx10.14:VMware vSphere ESX | 33.84 | 38.89
30.0-35.0 | VmwareEsx15:VMware vSphere ESX | 33.0 | 38.8

Figure 9.4: A list of components with Physical CPU utilization in a given range

By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_HOST]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

Note

➢ By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_HOST]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

- Adjacent to the pie chart, you will find a bar chart that indicates the components that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Registered guests* measure, this bar chart reveals the components that are the loaded with guests. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**. Clicking on the bar corresponding to a server name results in a **Server** Report (see Figure 9.5) that enables you to focus on the performance of that server.

Server Report for esx10.14:VMware vSphere ESX

MEASURES (UNIT)	AVG	MAX	MIN	
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0015	0.0067	0.0008	
TCP port availability (%)	100	100	100	
Powered guests (Number)	29	29	0	
Cpu usage (%)	16.9507	97.48	0.37	
Free memory (MB)	3548.8576	4733.0238	2520.3529	
Data transmits (Mbps)	0.5501	3.9609	0	
Data received (Mbps)	0.5067	132.7812	0.0234	
Disk usage (%)	68.5638	97.8508	41.746	
Guest CPU (%)	8.5415	100	0.03	
Active memory (MB)	511.591	4014.0781	0	

Figure 9.5: The server report that appears upon clicking on a bar chart in the Physical Servers report

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_HOST]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_HOST]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

- The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:
- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **NoOfServersforChart** parameter in the **[VIRTUAL_HOST]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear. This configuration governs the options listed in the **Show** field in Figure 9.1.
- Finally, save the **eg_report.ini** file.

18. Unlike a **Graph** report, a **Data** report does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report.
19. If the **Report Type** is **Data**, then clicking the **Run Report** button will invoke Figure 9.6.
20. The **Data** report will display multiple values for a measure depending upon the number and type of functions that have been configured for the measure (see Figure 9.6).

Physical Server Overview Report for VMware vSphere ESX

Server	Reg VMs	Powered VMs		Vms Added		Overall Physical CPU Used	Overall Physical CPU Utilization
	Avg (Number)	Avg (Number)	Max (Number)	Avg (Number)	Max (Number)	Avg (Mhz)	Avg (%)
Summary	26	21	-	1	-	5385.3	32.49
VmwareEsx15	33	28	28	0	0	5425.3	22.66
esx10.14	34	29	29	1	34	8120.3	33.91
vmesx136	10	6	6	1	10	2610.2	40.9

Figure 9.6: A Physical Servers – Hypervisor Overview Data Report

21. The first row of the **Data** report displays a **Summary** of the performance of all the servers that have been chosen for the report. Below this row, server-wise performance details will appear. These details together provide users with an overview of the health of the ESX server farm.
22. Besides user-configured measures, the **Data** report also contains a **Health %** column. For the **Summary** row, this column indicates the overall health of the chosen virtual servers. For each server, this column indicates the percentage of time a particular server has been in the **Normal** state during the chosen timeline. If a server has remained the constant victim of problems during the specified time period, then this percentage will obviously be low. To drill down to the root-cause of the issues affecting the server, click on the corresponding **Health %** value. This will lead you to the Executive report of the problem server, which will reveal when and what type of problems were encountered by the server (see Figure 9.7).

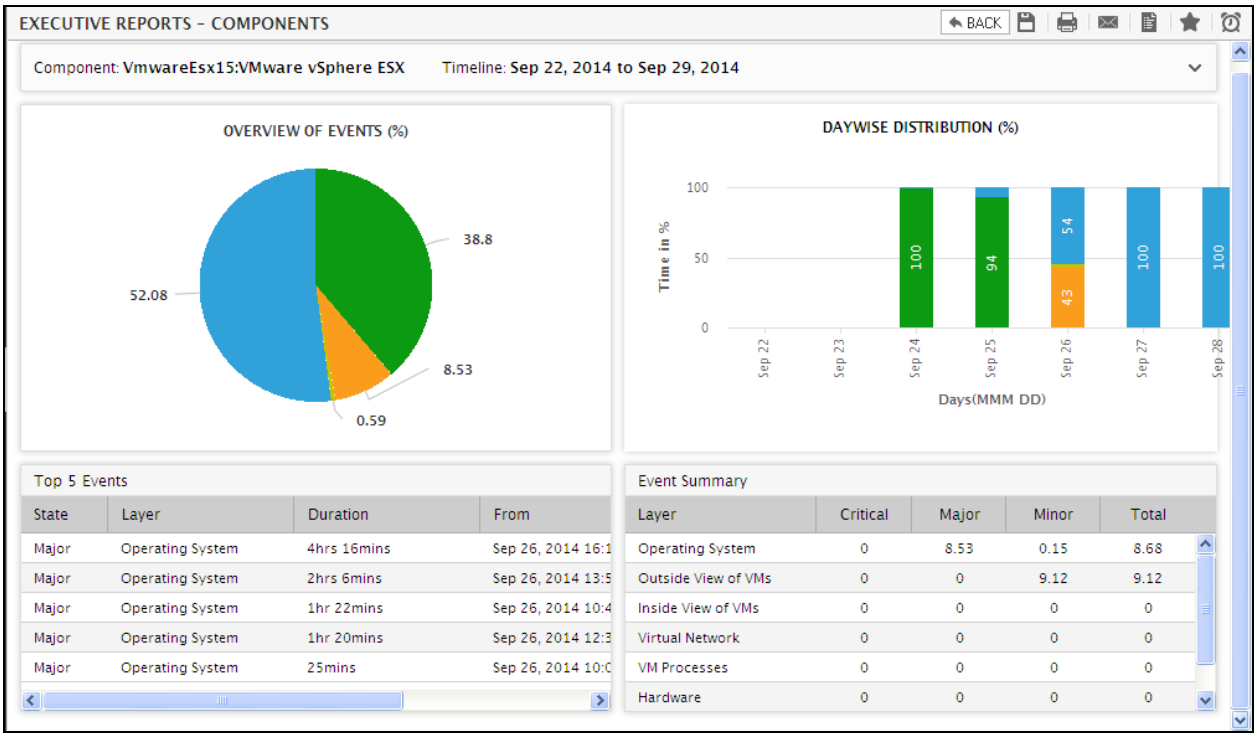
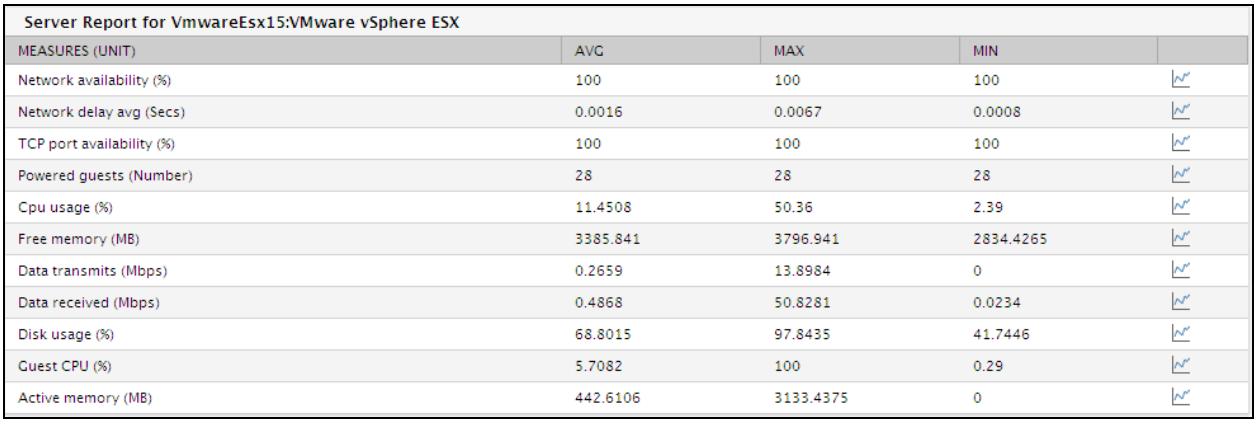


Figure 9.7: An Executive report of a virtual host

23. Also, to focus on the health of a particular server displayed in the **Data** report, click on the corresponding **Server** name in (see Figure 9.6). The **Server Report** will then appear (see Figure 9.8).



Server Report for VmwareEsx15:VMware vSphere ESX

MEASURES (UNIT)	AVG	MAX	MIN	
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0016	0.0067	0.0008	
TCP port availability (%)	100	100	100	
Powered guests (Number)	28	28	28	
Cpu usage (%)	11.4508	50.36	2.39	
Free memory (MB)	3385.841	3796.941	2834.4265	
Data transmits (Mbps)	0.2659	13.8984	0	
Data received (Mbps)	0.4868	50.8281	0.0234	
Disk usage (%)	68.8015	97.8435	41.7446	
Guest CPU (%)	5.7082	100	0.29	
Active memory (MB)	442.6106	3133.4375	0	

Figure 9.8: The Server report of the problem server

24. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the PDF icon in that page.

25. To save you the trouble of scrolling up the report everytime you want the review the report criteria, eG

Reporter now includes a separate section with the summary of your report specification. By default, this section appears with a ⌄ button. Clicking on this button (see Figure 9.9) before the report; will expand the report specification using which you can view/modify the criteria specified for generating the report.

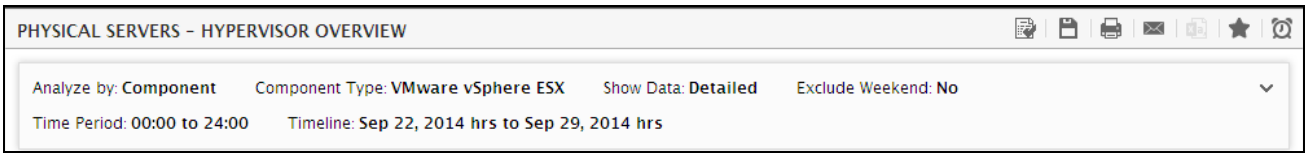

PHYSICAL SERVERS - HYPERVISOR OVERVIEW
Analyze by: Component
Component Type: VMware vSphere ESX
Show Data: Detailed
Exclude Weekend: No
Time Period: 00:00 to 24:00
Timeline: Sep 22, 2014 hrs to Sep 29, 2014 hrs

Figure 9.9: A summary of the report criteria

As stated earlier, you can configure the information that needs to appear in the **Physical Servers** report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. For example, to generate the report depicted by Figure 9.6, specify the following in the **[VIRTUAL_HOST]** section of the **eg_report.ini** file:

```
[VIRTUAL_HOST]

EsxGuestStatusTest:Registered_guests#Registered VMs=Avg
EsxGuestStatusTest:Guests_powered_on#Powered On VMs=Avg,Max
EsxMemoryTest:Memory_consumed#Consumed Memory=Avg
EsxMemoryTest:Pct_free_memory#Free Memory=Avg
EsxCpuTest:Usage#CPU Usage=Avg
EsxDiskUsageTest:Percent_usage#Disk Usage=Avg
EsxDiskTest:Issued_commands#Disk Commands=Avg
EsxDiskTest:Commands_aborted#Disk Command Aborts=Avg
EsxNetworkTest:Data_transmitted#Network Traffic Out=Avg
EsxNetworkTest:Data_received#Network Traffic In=Avg
EsxNetworkTest:Usage#Network Usage=Avg
```

Typically, measure configurations in the **[VIRTUAL_HOST]** section of the **eg_report.ini** file should be of the following format:

<InternalTest>:<InternalMeasure>#<Display name of measure>=<Comma-separated list of functions>

Before proceeding with the configuring, determine the internal component type, test, and measure names, using the procedure discussed in Page 212 of this manual.

Accordingly, in the first line of the example above:

- *EsxGuestStatusTest* is the *<InternalTest>* that reports the measure of interest to us
- *Registered_guests* is the *<InternalMeasure>* that is to be displayed in the report page
- The display name of the measure is *Registered VMs*, and finally,
- *Avg* is the function that is to be executed on the value of the *Registered_guests* measure
- The other measures that have been configured are: *Guests_powered_on, Memory_consumed, Pct_free_memory, CPU usage, Percent_usage, Issued_commands, Commands_aborted, Data_transmitted, Data_received, Network usage*.

This indicates for each chosen physical server, the following values will be displayed in the report:

- The average number of registered VMs
- The average and maximum number of powered-on VMs
- The average of memory consumed
- The average of free memory
- The average of CPU usage

- The average of disk usage
- The average number of disk commands issued
- The average of number of disk commands aborted
- The average of outgoing network traffic
- The average of incoming network traffic
- The average of network usage

- If functions such as *Avg*, *Max*, etc., are not explicitly configured in the **[VIRTUAL_GUEST]** section in the manner discussed above, then report will, by default, display the average (*Avg*) values for the configured measures.
- If a display name is not provided for a measure, then the actual measure name will automatically become the display name.

9.2 Physical Servers - Resources Report

This report provides deep insights into the resource utilization of the physical servers on a day-to-day basis as well as on a monthly basis. Using this report, the administrators can easily figure out the following:

- How well the CPU of the physical server has been utilized over a period of time? Is it under-utilized or over-utilized?
- Has the maximum CPU utilization limit reached?
- How well the memory of the physical server has been utilized? Are adequate memory resources available?
- What is the network usage of the physical server? Is the network available to the physical server?
- How well the disk of the physical server is utilized? Is it adequately sized or if additional disk is required for the storage activity of the physical server?

To generate the **Physical Servers - Resources** report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization ->Physical Servers -> Hypervisor Resources*.
2. Figure 9.10 now appears. First, select a criterion for analysis from the **Report For** list box. Using this report, you can view the resource utilization of independent physical servers or those that are part of a segment, service, or a zone. The options provided by the **Report For** list box are discussed hereunder:
   - **Component**: Select this option to choose the component(s) from across all the managed components in the environment. For instance, for a report on the resource utilization of the managed vSphere/ESX hosts in the environment, select *VMware vSphere ESX* from the **Component Type** list, select **Component** from the **Report For** list, and then select all the virtual hosts listed in the **Component** list of Figure 9.10. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.

- **Service**: Select this option to generate the report for all components that are involved in the delivery of a business service. Then, select a **Service**.
- **Segment**: Choose this option if the virtual hosts to be evaluated are configured on the virtual hosts that are part of a segment. Then, pick a **Segment** for analysis.
- **Zone**: Pick this option for a report on the status of the components managed on all virtual hosts that are included in a zone. Then, choose a **Zone**. Also, indicate whether the virtual servers present within the sub-zones of the chosen zone are also to be considered for report generation, by selecting an option from the **Include Subzones** list.

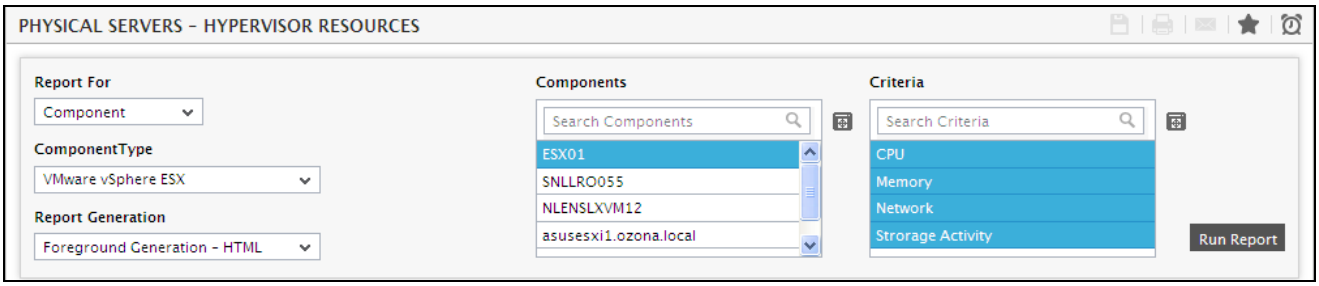


Figure 9.10: Selecting the criteria for the Physical Servers - Resources report

3. Next, from the **Component Type** list, pick the component type for which the report is to be generated. By default, all managed component types in your environment will be listed here.
4. Based on the criterion chosen from the **Report For** list, the **Components** list will be populated. Select one/more of the listed components to generate a report. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
5. Pick an option from the **Criteria** list box for which the report is to be generated. By default, this report enables you to figure out the CPU utilization, Memory utilization and Network usage of the chosen component. If the chosen component is *VMware vSphere ESX* as in Figure 9.10, then the report will be generated for the storage activity of the component as well. By default, all the options i.e., **CPU**, **Memory**, **Network** listed in this list box will be selected. If you wish to view the report for a single **Criteria** of your choice, you may just select that criteria alone from this list box.
6. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

7. Finally, click the **Run Report** button. Figure 9.11 will now appear.

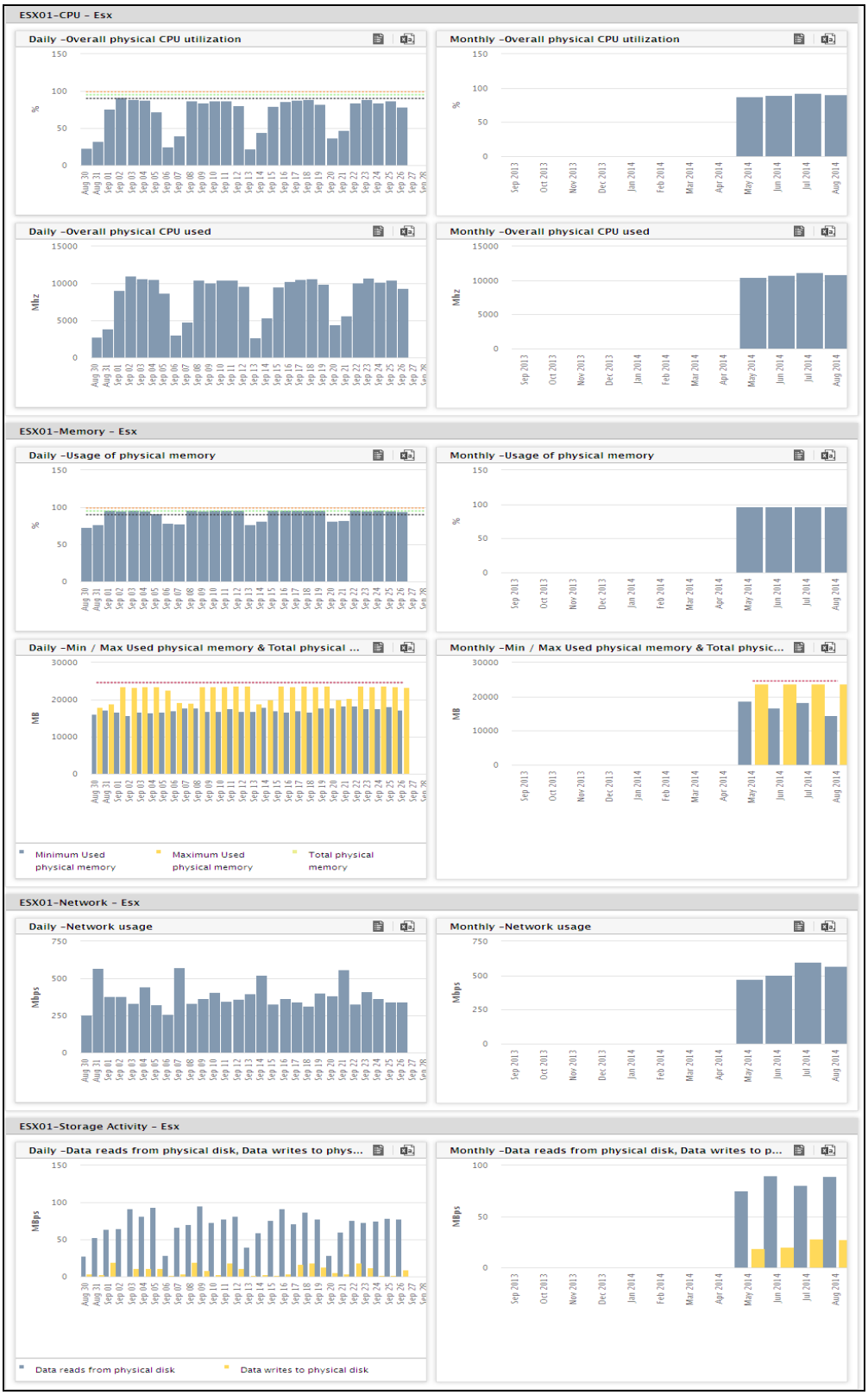

ESX01-CPU - Esx
Daily -Overall physical CPU utilization
Monthly -Overall physical CPU utilization
Daily -Overall physical CPU used
Monthly -Overall physical CPU used
ESX01-Memory - Esx
Daily -Usage of physical memory
Monthly -Usage of physical memory
Daily -Min / Max Used physical memory & Total physical ...
Monthly -Min / Max Used physical memory & Total physic...
Minimum Used physical memory
Maximum Used physical memory
Total physical memory
ESX01-Network - Esx
Daily -Network usage
Monthly -Network usage
ESX01-Storage Activity - Esx
Daily -Data reads from physical disk, Data writes to phys...
Monthly -Data reads from physical disk, Data writes to p...
Data reads from physical disk
Data writes to physical disk

Figure 9.11: The Physical Servers - Resources report

8. Figure 9.11 shows a graphical report on the utilization of various resources of the chosen component. This report provides you with the resource utilization of the component on a day-to-day basis and on a monthly basis. Using this report, you can easily identify, on which particular day/month the resource has been over-utilized/under-utilized. In addition to this, you can also view the thresholds set for the measure from the graph. Suppose if the Critical/Major/Minor thresholds are set for the **Overall physical CPU utilization** measure, then the threshold limits will be displayed as colored dots for the measure in both the daily report and the monthly report. When you mouse over the colored dots on a daily graph report, you will get to see the exact date and threshold for that measure on that day. Likewise, when you mouse over the threshold limit on a monthly graph, you will view the average threshold for that measure during the chosen month. In places where thresholds are not applicable, say for e.g., the **Minimum/Maximum Used physical memory** graph, the total physical memory of the component is specified in the graph as against the threshold values.

- By default, the number of days and number of months for which the graph is generated is 30 and 12 respectively. To override this default setting, do the following:
- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- To override the daily report graph, specify a number of your choice against the **TimePeriodforDays** parameter in the **[PHYSICAL_SERVERS_RESOURCES]** section of this file. By default, this parameter will hold the value 30.
- To override the monthly report graph, specify a number of your choice against the **TimePeriodforMonths** parameter in the **[PHYSICAL_SERVERS_RESOURCES]** section of this file. By default, this parameter will hold the value 12.
- Save the **eg_report.ini** file.

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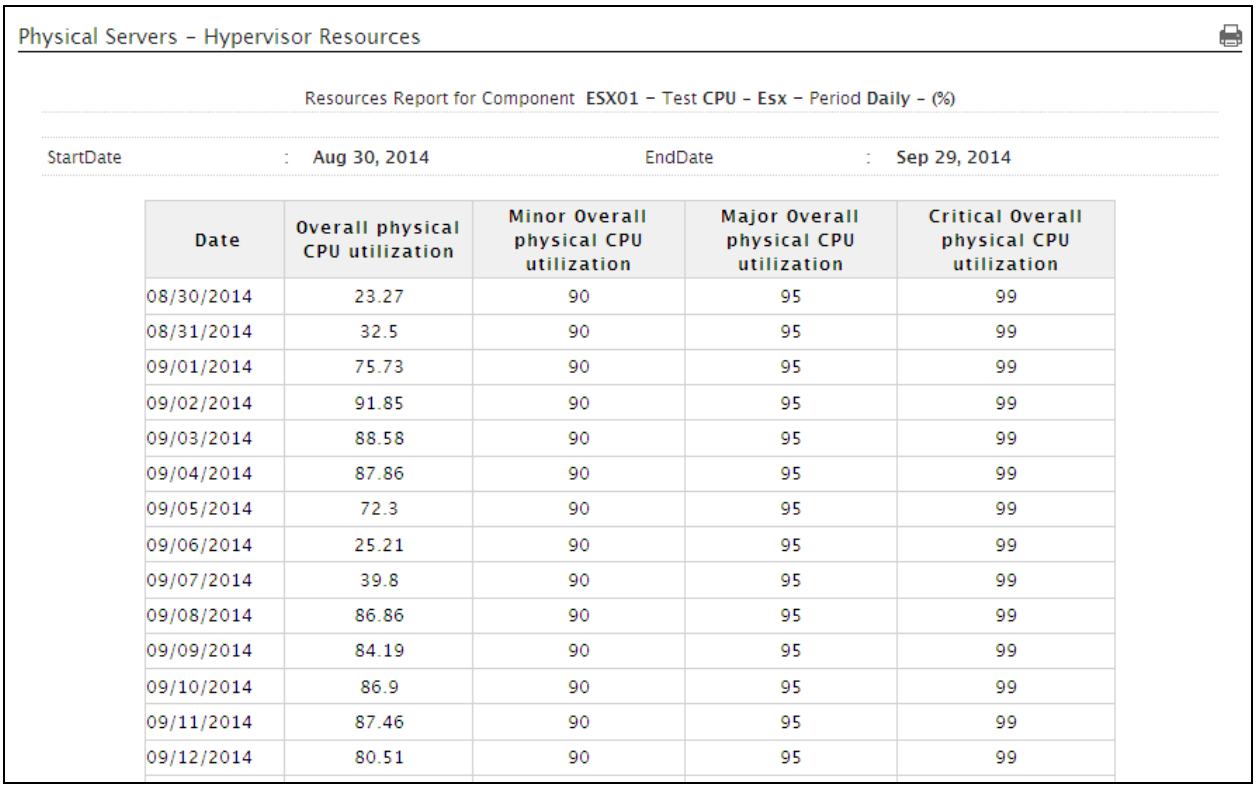
9. Apart from the graphical report, you can also view the data report for each individual graph by clicking on the icon present above each graph as in Figure 9.11. Upon doing so, a data report will appear for that chosen graph. Figure 9.12 shows the data report of the **Daily – Overall physical CPU utilization** graph. In this data table, you can view the physical CPU utilization of the chosen component on a daily basis and the corresponding threshold limits that were set for that measure.



Physical Servers – Hypervisor Resources

Resources Report for Component ESX01 – Test CPU – Esx – Period Daily – (%)

StartDate : Aug 30, 2014 EndDate : Sep 29, 2014

Date	Overall physical CPU utilization	Minor Overall physical CPU utilization	Major Overall physical CPU utilization	Critical Overall physical CPU utilization
08/30/2014	23.27	90	95	99
08/31/2014	32.5	90	95	99
09/01/2014	75.73	90	95	99
09/02/2014	91.85	90	95	99
09/03/2014	88.58	90	95	99
09/04/2014	87.86	90	95	99
09/05/2014	72.3	90	95	99
09/06/2014	25.21	90	95	99
09/07/2014	39.8	90	95	99
09/08/2014	86.86	90	95	99
09/09/2014	84.19	90	95	99
09/10/2014	86.9	90	95	99
09/11/2014	87.46	90	95	99
09/12/2014	80.51	90	95	99

Figure 9.12: Data report of the *Overall physical CPU utilization* measure on a daily basis

While the actual Network usage of the component is represented for the Components types like VMware vSphere Esx, VMware vSphere VDI, Hyper – V, Hyper – V VDI, Oracle VDI etc, the Network usage for the Citrix Xenserver component type is represented as a combination of I/O Read rate and I/O Write rate.

9.3 Physical Servers – Capacity Report

The **Physical Servers - Capacity** report provides deep insights into the resource utilization of the hosts in the physical server farm and enables the administrators to actually compare the resource utilization of all the hosts in the physical server farm. Apart from this, the report also helps you to figure out the following:

- The resource hungry hosts in the physical server farm;
- The root cause to the paucity of resources on the hosts can be diagnosed by quickly drilling down to the VMs operating on the hosts – Is it due to the resource hungry processes on the hosts or the resource intensive VMs or because of the over allocation of resources to the VMs?;

Based on this report, you can plan the future migration activity of the VMs by identifying those VMs that consume high resources of a host. This way, you can release the resources of a resource intensive host. Apart from this, you can also identify whether these hosts are capable of accommodating additional VMs to them? Are there enough

resources in the hosts to support those additional VMs or should the capacity of the hosts need to be enhanced to handle the additional load of the VMs either at present or in the future?

To generate the **Physical Servers - Capacity** report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Physical Servers -> Capacity* in the eG Reporter interface.
2. Figure 9.13 appears. First, select a criterion for analysis from the **Analyze by** list box. Using this report, you can analyze the capacity of the hosts and virtual machines hosted on independent virtual servers or those that are part of a segment, service, or a zone. The options provided by the **Analyze by** list box are discussed hereunder:
   - **Component**: Select this option to choose the component(s) from across all the managed virtualized components in the environment. For instance, for a report on the capacity of VMs on all the managed vSphere/ESX hosts in the environment, select *VMware vSphere ESX* from the **Component Type** list, select **Component** from the **Analyze by** list, and then select all the virtual hosts listed in the **Component** list of Figure 9.13. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
   - **Service**: Select this option to generate the report for all virtual servers that are involved in the delivery of a business service. Then, select a **Service**.
   - **Segment**: Choose this option if the virtual servers to be evaluated are configured on the virtual hosts that are part of a segment. Then, pick a **Segment** for analysis.
   - **Zone**: Pick this option for a report on the status of virtual servers managed on all virtual hosts that are included in a zone. Then, choose a **Zone**. Also, indicate whether the virtual servers present within the sub-zones of the chosen zone are also to be considered for report generation, by selecting an option from the **Include Subzone** list.

Figure 9.13: Selecting the criteria for the Physical Servers - Capacity report

3. Next, from the **Component Type** list, pick the virtualized component-type for which the report is to be generated. By default, all managed virtualization platforms will be listed here.
4. Based on the criterion chosen from the **Analyze by** list, the **Component** list will be populated. Select one/more of the listed components to generate a report. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
5. Next, using the **Timeline** option, specify the period to which this report should pertain.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick an option from the **Component** list. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.14). The steps below discuss each of these settings and how they can be customized.

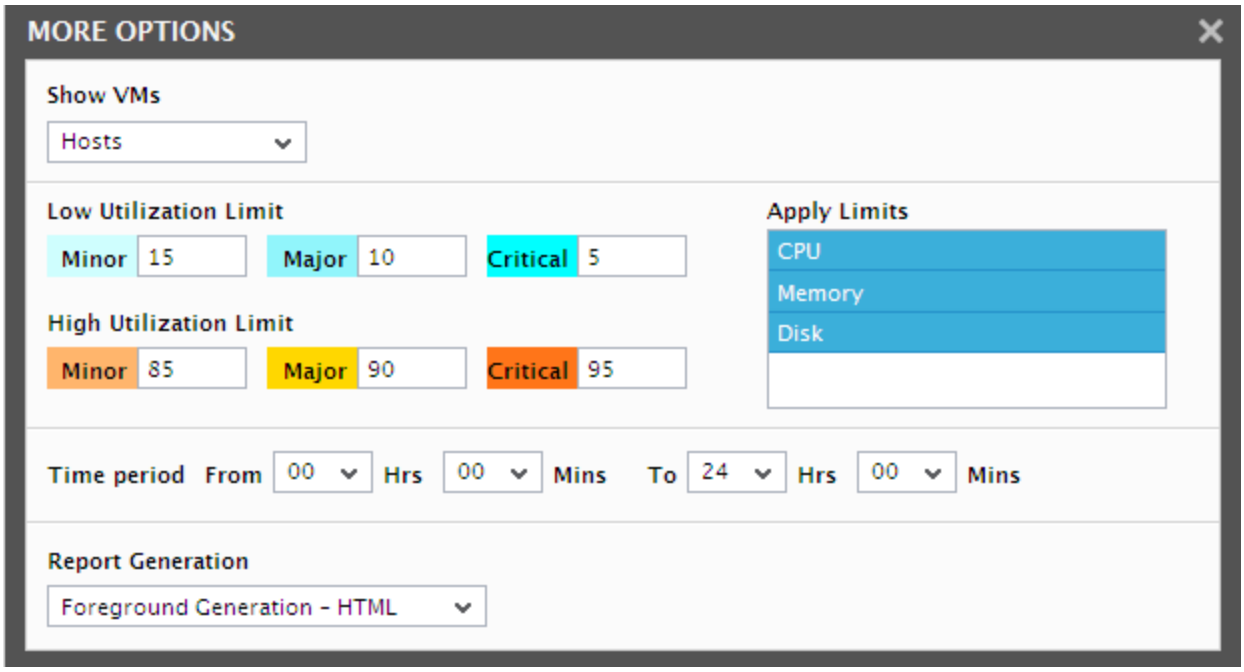


Figure 9.14: The default settings for generating a Physical Servers – Capacity report

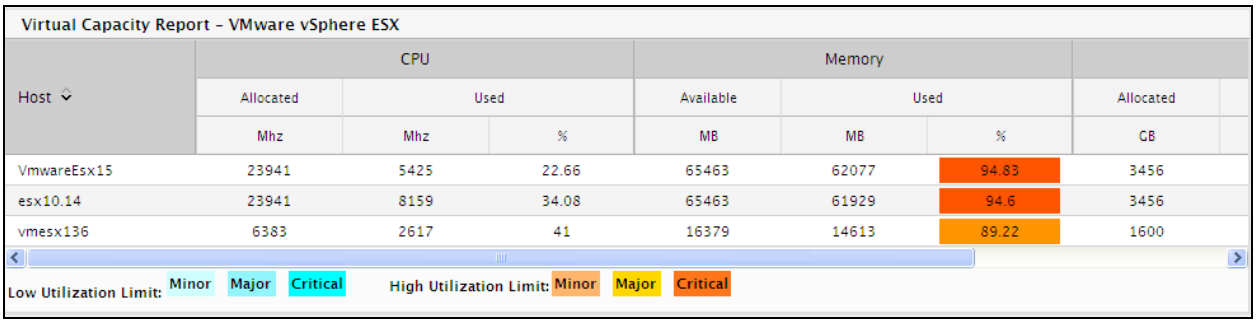
7. Pick an option from the **Show VMs** list box to view the current capacity of the hosts and individual VMs that are hosted in the virtualized environment. By default, the **Hosts** option will appear in this list box indicating that the

capacity of the hosts in the virtual environment can be viewed at a single glance. In order to view the current capacity of individual VMs, select the **VMs** option from this list. Choose the **Hosts & VMs** option to clearly understand the current capacity of the hosts and the corresponding VMs at a single glance.

8. eG Enterprise System offers the flexibility of allowing the administrators to view the VMs/Hosts that consume high/low resources from the generated report at a single glance. This can be achieved by providing the lower/higher threshold limits of your choice i.e., providing the Minor/Major/Critical values in the appropriate **colored** text boxes against the **Low Utilization Limit** and **High Utilization Limit** options. Doing so, whenever the VMs/Hosts violate the specified threshold values, the current capacity of that particular VM/Host will be highlighted with the corresponding color of the specified text box in the generated report. This way, you can easily identify the VMs/Hosts that consume high/low resources in your environment. By default, the values specified against the Minor/Major/Critical text boxes of the **Low Utilization Limit** and **High Utilization Limit** options will be **5/10/15** and **85/90/95** respectively.
9. Choose an option from the **Apply Limits** list box so that the values that fall in the range mentioned in the **Low Utilization Limit** and **High Utilization Limit** options will be highlighted in the generated report. By default, all the three options (**CPU/Memory/Disk**) will be selected indicating that the administrators can view the resource intensive/resource hungry VMs/Hosts based on their CPU/Disk/Memory utilization.
10. Next, indicate the report **Timeperiod**.
11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

12. Clicking on the **RUN REPORT** button in Figure 9.13 will reveal the Physical Servers - Capacity report as in Figure 9.15.



Virtual Capacity Report – VMware vSphere ESX

Host	CPU			Memory			
	Allocated	Used		Available	Used		Allocated
	Mhz	Mhz	%	MB	MB	%	GB
VmwareEsx15	23941	5425	22.66	65463	62077	94.83	3456
esx10.14	23941	8159	34.08	65463	61929	94.6	3456
vmesx136	6383	2617	41	16379	14613	89.22	1600

Low Utilization Limit: Minor Major Critical High Utilization Limit: Minor Major Critical

Figure 9.15: The Physical Servers - Capacity report

13. Figure 9.15 shows the **Physical Servers - Capacity** report that is generated when the **Hosts** option is chosen from the **Show VMs** list box. Using this report, you can easily figure out the actual resource usage of the hosts and identify if there is any potential bottleneck on the hosts. The generated report will list the CPU, Memory and disk usage of the host. From the generated report, you can easily identify the following:

    - The allocated CPU and the CPU that is currently utilized by the hosts. The actual value in Megahertz and the percentage of CPU utilized will be indicated in separate columns. (see Figure 9.15).
    - The memory that is currently available in the host and the memory that is currently in use by the virtual host. The actual memory usage in MB and the percentage of memory utilized will be represented in separate columns.
    - The disk space that is currently allocated to each host and the disk space that is currently in use by the host. The actual disk space that is utilized (in GB) and the percentage of disk space utilization will be represented in separate columns.

    By default, the hosts will be sorted in the descending order. If you wish to sort the hosts in the descending order, then click on the **down** arrow adjacent to the **Host** in the generated report. Likewise, you can sort the report based on any column. To do so, just click on the measurement units displayed in each column of the report. The column will now be sorted in ascending order.

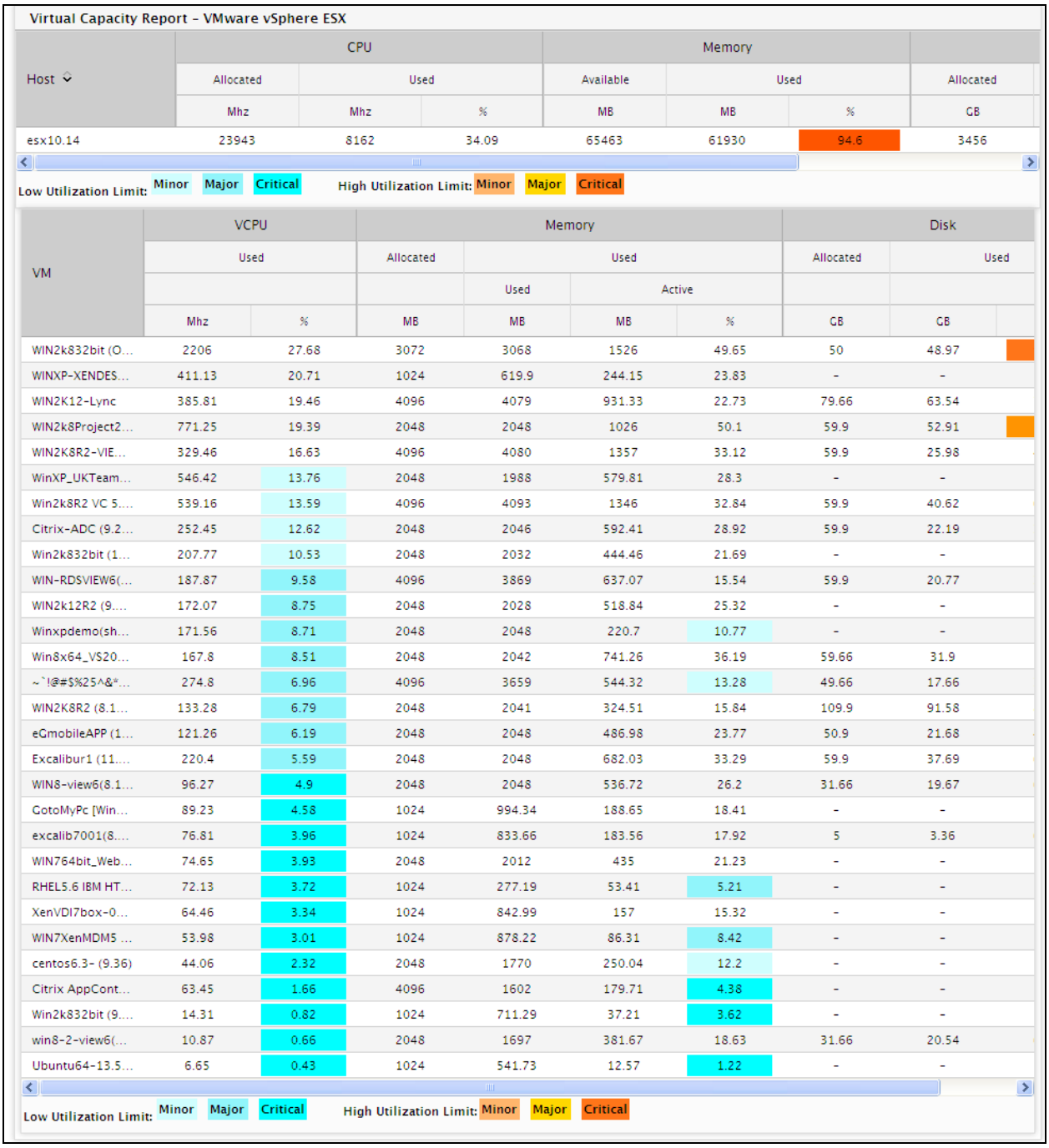
14. If you have selected the **VMs** option from the **Show VMs** list box, then the report (see Figure 9.16) will be generated for all the VMs that are hosted in the target environment. The generated report will list all the VMs along with the host that is hosting the VMs. The generated report will consist of the details as discussed in step 13.

Virtual Capacity Report - VMware vSphere ESX

Host	VM	VCPU		Memory				
		Used		Allocated	Used			Allocated
					Used	Active		
		Mhz	%	MB	MB	MB	%	GB
esx10.14	WIN2k832bit (O...	2206	27.68	3072	3068	1526	49.65	50
VmwareEsx15	Excalibur2 (11....	883.15	22.24	4096	4096	1424	34.75	59.9
esx10.14	WINXP-XENDES...	411.13	20.71	1024	619.9	244.15	23.83	-
esx10.14	WIN2K12-Lync	385.81	19.46	4096	4079	931.33	22.73	79.66
esx10.14	WIN2k8Project2...	771.25	19.39	2048	2048	1026	50.1	59.9
vmesx136	Win2K3-32Bit (...	300.18	19.09	2048	1740	1145	55.92	19.99
vmesx136	WINXPdemo(sa...	295.51	18.72	512	447.13	201.64	39.37	-
VmwareEsx15	DB2v10.5 (11.11)	339.4	17.01	4096	4096	758.35	18.5	89.9
esx10.14	WIN2K8R2-VIE...	329.46	16.63	4096	4080	1357	33.12	59.9
vmesx136	Ilio-4.1.0.25 (9....	255.05	16.38	12288	4762	633.88	5.15	-
vmesx136	eG258 [9.129]	242.69	16.19	2048	1890	340.1	16.6	-
esx10.14	WinXP_UKTeam...	546.42	13.76	2048	1988	579.81	28.3	-
esx10.14	Win2k8R2 VC 5....	539.16	13.59	4096	4093	1346	32.84	59.9
VmwareEsx15	Win2k8r2 - (9.32)	521.54	13.17	4096	4096	1759	42.93	-
VmwareEsx15	Keithdemo (11....	254.69	12.88	1024	1024	231.48	22.6	-
VmwareEsx15	WIN2K8R2 SCO...	500.46	12.66	6144	6144	1525	24.81	69.9
esx10.14	Citrix-ADC (9.2...	252.45	12.62	2048	2046	592.41	28.92	59.9
VmwareEsx15	eGontapindia [...	454.05	11.48	4096	3970	1529	37.33	-
VmwareEsx15	WINXP-DEMO (...	223.26	11.36	2048	1274	282.41	13.78	-
esx10.14	Win2k832bit (1...	207.77	10.53	2048	2032	444.46	21.69	-
VmwareEsx15	WINXP (Demo_o...	408.87	10.37	3072	1993	782.58	25.47	15.01
esx10.14	WIN-RDSVIEW6(...	187.87	9.58	4096	3869	637.07	15.54	59.9
esx10.14	WIN2k12R2 (9....	172.07	8.75	2048	2028	518.84	25.32	-
esx10.14	Winxpdemo(sh...	171.56	8.71	2048	2048	220.7	10.77	-
esx10.14	Win8x64_VS20...	167.8	8.51	2048	2042	741.26	36.19	59.66
VmwareEsx15	mikedemo-PC (...	291.22	7.5	1896	1896	475.92	25.09	-
esx10.14	~`!@#$%25^&*...	274.8	6.96	4096	3659	544.32	13.28	49.66
esx10.14	WIN2K8R2 (8.1...	133.28	6.79	2048	2041	324.51	15.84	109.9
VmwareEsx15	Win2k8R2-Citri...	126.61	6.54	2048	1616	328.59	16.03	-
esx10.14	eGmobileAPP (1...	121.26	6.19	2048	2048	486.98	23.77	50.9
VmwareEsx15	WIN2-RDSVIEW...	112.14	5.86	4096	3727	365.1	8.9	59.9
esx10.14	Excalibur1 (11....	220.4	5.59	2048	2048	682.03	33.29	59.9
esx10.14	WIN8-view6(8.1...	96.27	4.9	2048	2048	536.72	26.2	31.66
VmwareEsx15	Win2008R2-VC...	93.34	4.86	4096	4095	663.37	16.19	-
esx10.14	GotoMyPc [Win...	89.23	4.58	1024	994.34	188.65	18.41	-
VmwareEsx15	informix (11.19)	85.65	4.46	2048	1508	280.48	13.69	59.9

Figure 9.16: The Physical Servers - Capacity report that is generated when the VMs option is selected

15. If the **Hosts & VMs** option is chosen from the **Show Criteria** list box, then the report will be generated as in Figure 9.17. The generated report will be a combination of the report that is generated when the **Hosts** and the **VMs** option are selected individually. In this report, you will be able to view the capacity of each individual host and the VMs that are hosted through that host.



Virtual Capacity Report - VMware vSphere ESX

Host	CPU			Memory			
	Allocated	Used		Available	Used		Allocated
	Mhz	Mhz	%	MB	MB	%	GB
esx10.14	23943	8162	34.09	65463	61930	94.6	3456

Low Utilization Limit: Minor Major Critical High Utilization Limit: Minor Major Critical

VM	VCPU		Memory				Disk	
	Used		Allocated	Used			Allocated	Used
				Used	Active			
	Mhz	%	MB	MB	MB	%	GB	GB
WIN2k832bit (O...	2206	27.68	3072	3068	1526	49.65	50	48.97
WINXP-XENDES...	411.13	20.71	1024	619.9	244.15	23.83	-	-
WIN2K12-Lync	385.81	19.46	4096	4079	931.33	22.73	79.66	63.54
WIN2k8Project2...	771.25	19.39	2048	2048	1026	50.1	59.9	52.91
WIN2K8R2-VIE...	329.46	16.63	4096	4080	1357	33.12	59.9	25.98
WinXP_UKTeam...	546.42	13.76	2048	1988	579.81	28.3	-	-
Win2k8R2 VC 5....	539.16	13.59	4096	4093	1346	32.84	59.9	40.62
Citrix-ADC (9.2...	252.45	12.62	2048	2046	592.41	28.92	59.9	22.19
Win2k832bit (1...	207.77	10.53	2048	2032	444.46	21.69	-	-
WIN-RDSVIEW6(...	187.87	9.58	4096	3869	637.07	15.54	59.9	20.77
WIN2k12R2 (9....	172.07	8.75	2048	2028	518.84	25.32	-	-
Winxpdemo(sh...	171.56	8.71	2048	2048	220.7	10.77	-	-
Win8x64_VS20...	167.8	8.51	2048	2042	741.26	36.19	59.66	31.9
~`!@#$%25^&*...	274.8	6.96	4096	3659	544.32	13.28	49.66	17.66
WIN2K8R2 (8.1...	133.28	6.79	2048	2041	324.51	15.84	109.9	91.58
eGmobileAPP (1...	121.26	6.19	2048	2048	486.98	23.77	50.9	21.68
Excalibur1 (11....	220.4	5.59	2048	2048	682.03	33.29	59.9	37.69
WIN8-view6(8.1...	96.27	4.9	2048	2048	536.72	26.2	31.66	19.67
GotoMyPc [Win...	89.23	4.58	1024	994.34	188.65	18.41	-	-
excalib7001(8....	76.81	3.96	1024	833.66	183.56	17.92	5	3.36
WIN764bit_Web...	74.65	3.93	2048	2012	435	21.23	-	-
RHEL5.6 IBM HT...	72.13	3.72	1024	277.19	53.41	5.21	-	-
XenVDI7box-0...	64.46	3.34	1024	842.99	157	15.32	-	-
WIN7XenMDM5 ...	53.98	3.01	1024	878.22	86.31	8.42	-	-
centos6.3- (9.36)	44.06	2.32	2048	1770	250.04	12.2	-	-
Citrix AppCont...	63.45	1.66	4096	1602	179.71	4.38	-	-
Win2k832bit (9....	14.31	0.82	1024	711.29	37.21	3.62	-	-
win8-2-view6(...	10.87	0.66	2048	1697	381.67	18.63	31.66	20.54
Ubuntu64-13.5...	6.65	0.43	1024	541.73	12.57	1.22	-	-

Low Utilization Limit: Minor Major Critical High Utilization Limit: Minor Major Critical

Figure 9.17: The Physical Servers - Capacity report that is generated when the *Hosts & VMs* option is selected

9.4 Virtual Machines – VMs Overview Report

The **Virtual Machines – VMs Overview** report provides administrator with a closer look at the status and resource usage patterns of the VMs on a particular server or a server farm. Using this report, administrators can figure out the following:

- How many VMs across the environment are in a powered-off state? Which ones are they?

- What percentage of time has a VM been in a powered-off state?
- Are VMs adequately sized in terms of resources?
- Is any VM utilizing the allocated resources extensively?
- How mildly/badly is the resource usage of a VM impacting the physical resources available with the server?

The details displayed in this report enable administrators to identify resource-intensive VMs and review resource allocations to these VMs and the physical server hosting them. Potential resource bottlenecks can be detected early using this report and alleviated. Critical performance decisions such as whether or not to move a VM to another physical server can also be taken based on the findings of this report. Unused VMs causing an unnecessary resource drain can also be identified, and pulled down if need be.

To generate this report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Virtual Machines -> VMs Overview* in the eG Reporter interface.
2. Figure 9.18 then appears. For a graphical report, select **Graph** as the **Report Type**.

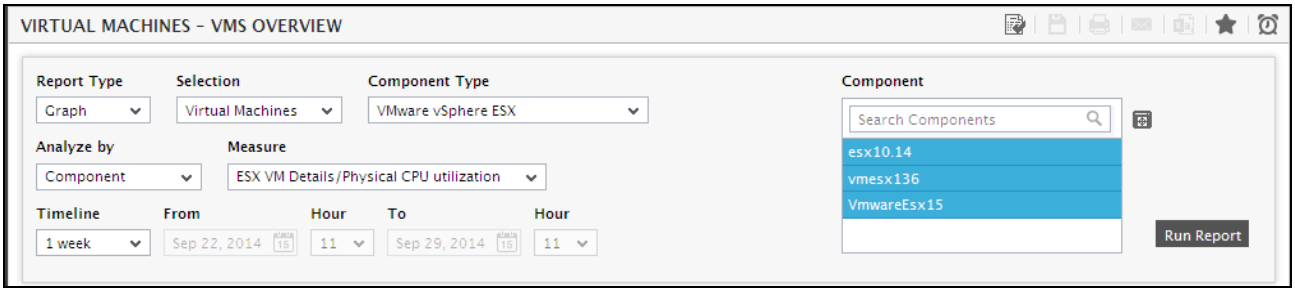


Figure 9.18: Selecting the criteria for a Virtual Machines – VMs Overview report

3. To generate a **VMs Overview** report, select **Virtual Machines** from the **Selection** list.
4. The **Component Type** report displays all the managed virtual component-types – e.g., *VMware vSphere ESX*, *Citrix XenServer,* etc. For a report on ESX servers, select *VMware vSphere ESX*.
5. Then, select a criterion for analysis from the **Analyze by** list box. Using this report, you can analyze the performance of one/more independent virtualized components, or those that are part of a segment, service, or a zone. This way, you can assess the impact of the performance of the virtual components on a particular service/segment/zone's performance, and accordingly take performance decisions. The options provided by the **Analyze by** list box are discussed hereunder:
   - **Component**: Select this option to choose the component(s) from across all the managed components in the environment. For instance, for a report on the performance of all the managed ESXi hosts in the environment, select *VMware vSphere ESX* from the **Component Type** list, select **Component** from the **Analyze by** list, and then select all the virtual hosts listed in the **Components** list of Figure 9.18.
   - **Service**: Select this option if the components for which a report is to be generated are involved in the delivery of a business service. Then, select a **Service**.
   - **Segment**: Choose this option if the virtual hosts to be evaluated are part of a segment. Then, pick a **Segment** for analysis.
   - **Zone**: Pick this option for a report on the performance of virtual components that are included in a zone. Then, choose a **Zone**.
6. If the **Components** list consists of too many components, then viewing all the components and selecting the

ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.

7. Typically, for a **Data** report, users can configure the measures that need to feature in the report and the functions to be applied on them in the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. However, if the **Report Type** chosen is **Graph**, you will be required to select the **Measure** for which the graph is to be generated from Figure 9.18. For instance, to assess how the managed VMs in the environment use the CPU resources available to them, choose *EsxGuestDetails/Physical CPU utilization* measure from the **Measure** list. The **Graph** report that then appears reveals the top CPU consumers in the chosen server farm.
8. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

9. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Component**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.19). The steps below discuss each of these settings and how they can be customized.

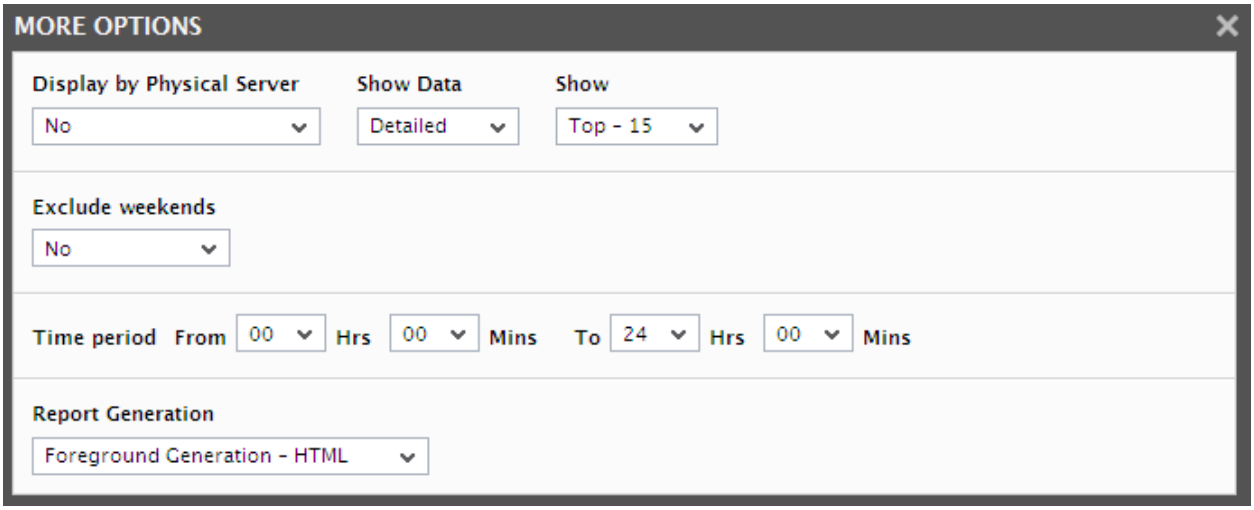


Figure 9.19: The default settings for generating the Virtual machines – VMs Overview report

10. The **Graph** report comprises of a pie chart followed by a bar chart. If you want the VM names in the bar chart to be accompanied by their corresponding physical server names, then set the **Display by Physical Server** flag to **Yes**. By default, the flag is set to **No**.

11. To indicate how many of the top/least resource users the resulting graph should depict, so as not to clutter the display, select an option from the **Show** list.

12. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.19. By default, the **Detailed** option is selected in Figure 9.19 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

    - Login to the eG administrative interface as 'admin'.
    - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
    - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
  - For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.7) informing you that only the **Trend** option is permitted.
  - To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

13. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.
14. Next, indicate the report **Timeperiod**.
15. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

Note

16. Finally, click the **Run Report** button.

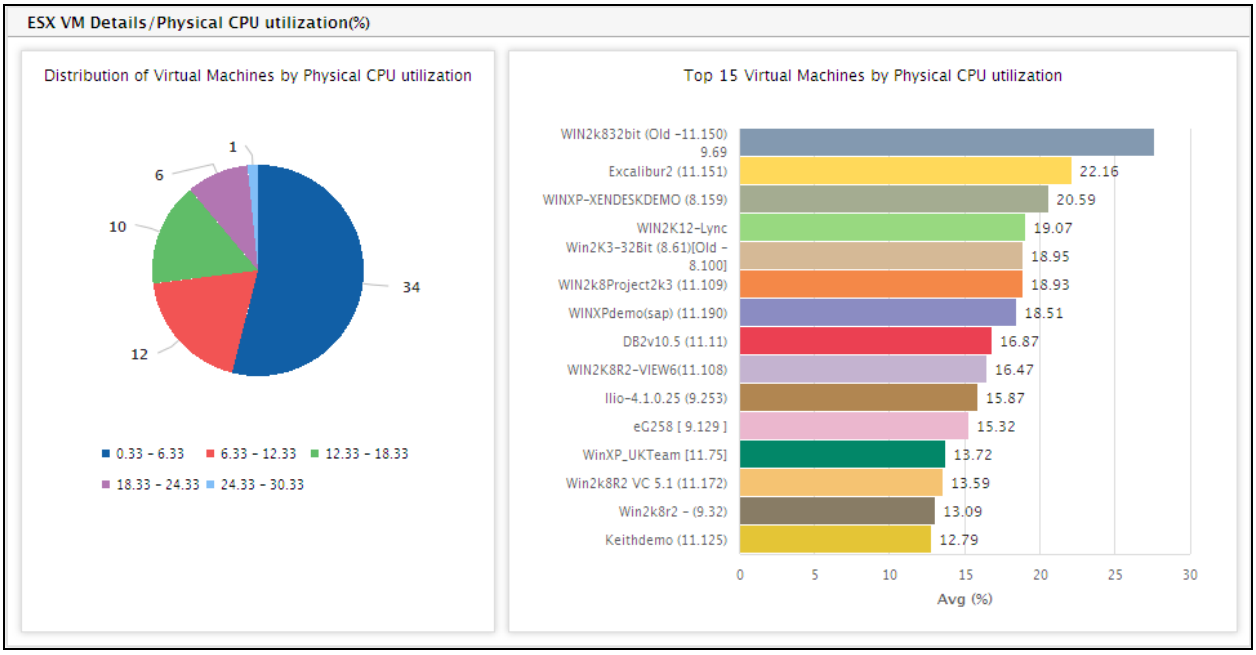


Figure 9.20: A Virtual Machines - VMs Overview graph report

17. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report button** will invoke Figure 9.20, which will reveal the following:
    - A distribution pie chart that reveals the number of VMs in different distribution ranges (see Figure 9.20). The distribution ranges are obtained based on the first of the configured functions for the chosen **Measure**. For instance, assume that *Physical CPU utilization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of *Physical CPU utilization* in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of

the two functions - i.e., *Avg* of *Physical CPU utilization* - alone is calculated for every VM on the chosen virtual component-type. The resulting pie chart enables administrators to deduce, at a glance, the number of components where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the VMs that fall within the value range represented by that slice (see Figure 9.21). Against every VM name, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A zone/segment/service/component-type-level **Summary** of the chosen **Measure** will also be available.

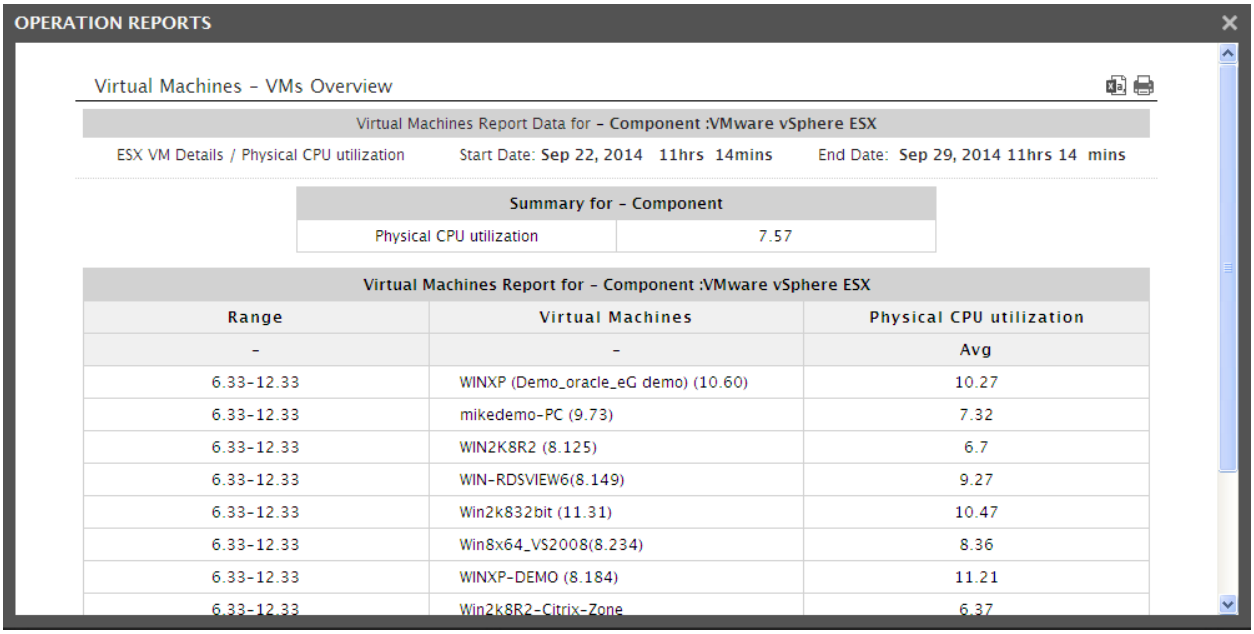


Figure 9.21: A list of components with Physical CPU utilization in a given range

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_GUEST]** section of this file from the default **Pie**, to **Bar**.
  - Save the **eg_report.ini** file.

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_GUEST]** section of this file. By default, this parameter will hold the value 10.
  - Save the **eg_report.ini** file.

- Adjacent to the pie chart, you will find a bar chart that indicates the VMs that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Physical CPU utilization* measure, this bar chart reveals the VMs that are the top CPU-consumers. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_GUEST]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_GUEST]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

- The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:
- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **NoOfServersforChart** parameter in the **[VIRTUAL_GUEST]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear. This configuration governs the options listed in the **Show** list box in Figure 9.18.
- Finally, save the **eg_report.ini** file.

18. Unlike a **Graph** report, a **Data** report does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report.
19. If the **Report Type** is **Data**, then upon clicking the **Run Report** button Figure 9.22 will be invoked.
20. The **Data** report will display multiple values for a measure depending upon the number and type of functions that have been configured for the measure. By default however, the **VM Powered on** measure will be displayed as the percentage of time for which the corresponding VM had been in a powered-on state on a physical server (see Figure 9.22).

Virtual Machines Report for a Component : VMware vSphere ESX

Virtual Machines	Operating Systems	CPU Used	CPU Usage	Ready Time	VM Powered On	Configured Memory	Active Memory	Memory Usag
		Avg (%)	Avg (Mhz)	Avg (%)	Avg (%)	Avg (MB)	Avg (MB)	Avg (%)
Summary	-	7.57	218.34	0.24	82	2573.8	470.24	18.35
BugTracker (9....	Windows 8 (64-bit)	2.99	59.14	0.06	100	2048	445.99	21.77
CBR-ESX-VPX(8...	Red Hat Enterpris...	0.33	12.26	0.06	100	1024	0.23	0.02
CentOS-5.3	-	-	-	-	0	-	-	-
CentOS-7.0	Other Linux (32-...	0.66	12.64	0.08	100	2048	19.14	0.93
Citrix AppCont...	Other 2.6.x Linux...	1.61	63.3	0.1	100	4096	178.78	4.35
Citrix-ADC (9....	Windows Server 2...	12.47	251.22	0.21	100	2048	591.77	28.89
Excalibur1 (11....	Windows Server 2...	5.5	218.43	0.13	100	2048	681.02	33.24

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Figure 9.22: A Virtual Machine – VMs Overview Data Report

21. The first row of the Data report displays a Summary of the performance of all the VMs configured on the chosen virtual hosts. Below this row, server-wise performance details will appear. These details together provide users with an overview of the health of virtual machines in the server farm. Clicking on a **Virtual Machine** here will lead you to the **Physical Resources Usage** report, using which you can assess how resource-efficient the VM is.
22. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report button** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will

lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the icon in that page.

As stated earlier, you can configure the information that needs to appear in the **Virtual Machines** report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. For example, to generate the report depicted by Figure 9.22, specify the following in the **[VIRTUAL_GUEST]** section of the **eg_report.ini** file:

```
[VIRTUAL_GUEST]

EsxGuestTest:Cpu_used#CPU Used=Avg
EsxGuestTest:Cpu_usage#CPU Usage=Avg
EsxGuestTest:Ready#Ready Time=Avg
EsxGuestTest:Powered_on#VM Powered On=
EsxGuestTest:Configured_memory#Configured Memory=Avg
EsxGuestTest:Active_memory#Active memory=Avg
EsxGuestTest:Memory_usage#Memory Usage=Avg
EsxGuestTest:Total_capacity#Disk Capacity=Avg
EsxGuestTest:Data_writes#Disk Writes=Avg
EsxGuestTest:Data_reads#Disk Reads=Avg
EsxGuestTest:Data_transmitted#Network Traffic Out=Avg
EsxGuestTest:Data_received#Network Traffic In=Avg
```

Typically, measure configurations in the **[VIRTUAL_GUEST]** section of the **eg_report.ini** file should be of the following format:

<InternalTest>:<InternalMeasure>#<Display name of measure>=<Comma-separated list of functions>

Before proceeding with the configuring, determine the internal component type, test, and measure names, using the procedure discussed in Page 212 of this manual.

Accordingly, in the first line of the example above:

- *EsxGuestTest* is the *<InternalTest>* that reports the measure of interest to us
- *CPU_used* is the *<InternalMeasure>* that is to be displayed in the report page
- The display name of the measure is *CPU Used*, and finally,
- *Avg* is the function that is to be executed on the value of the *CPU_used* measure
- The other measures that have been configured are: *CPU_usage, Ready, Powered_on, Configured_memory, Active_memory, Memory_usage, Total_capacity, Data_writes,Data_reads, Data_transmitted, Data_received*.

This indicates for each chosen physical server, the following values will be displayed in the report:

- The average CPU used by a VM, in Mhz and Percentage
- The average time for which CPU was in a ready state
- The average configured memory
- The average active memory
- The average memory usage

- The average disk capacity
- The average disk reads and writes
- The average of incoming and outgoing network traffic

- If functions such as *Avg*, *Max*, etc., are not explicitly configured in the **[VIRTUAL_GUEST]** section in the manner discussed above, then report will, by default, display the average (*Avg*) values for the configured measures.
- If a display name is not provided for a measure, then the actual measure name will automatically become the display name.

9.5 Virtual Machines – VM Details Report

The **Virtual Machines - Details** report enables administrators to zoom into a particular VM, analyze its performance up, close, and accurately determine the following:

- Has the VM been frequently moved to other hosts?
- Which are the servers to which a VM has been Vmotioned during a given period?
- Why was the VM moved? Is it because the VM is resource-intensive and is hence eroding the physical resources of the host, or is it owing to the fact that the host is not adequately sized to support the VM's operations?
- How well is the VM using the resources allocated to it? Are spikes in usage sporadic/consistent? Have these usage patterns impacted the performance of any of the hosts on which the VM was Vmotioned/XenMotioned to during the designated period? What could be the reason for this anomaly - a resource-hungry application executing on the VM or insufficient resource allocation to the VM by the host?

To facilitate this analysis, the **Virtual Machines - Details** category of reports helps generate two types of reports - namely, the **Physical Resources Usage** report, and the **Virtual Resources Usage** report.

Physical Resources Usage Report

Using the **Physical Resources Usage** report, administrators can track the movement of a VM across physical servers, compare the relative resource usage of that VM across these physical servers, and determine why the move happened in the first place - is the VM so resource-hungry that it drains the physical server of its resources, or are one/more hosts starved for resources?

To generate the **Physical Resources Usage** report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Virtual Machines -> VM Details* in the eG Reporter interface.
2. From the **Selection** list in Figure 9.23, pick the **Physical Resources Usage** option.

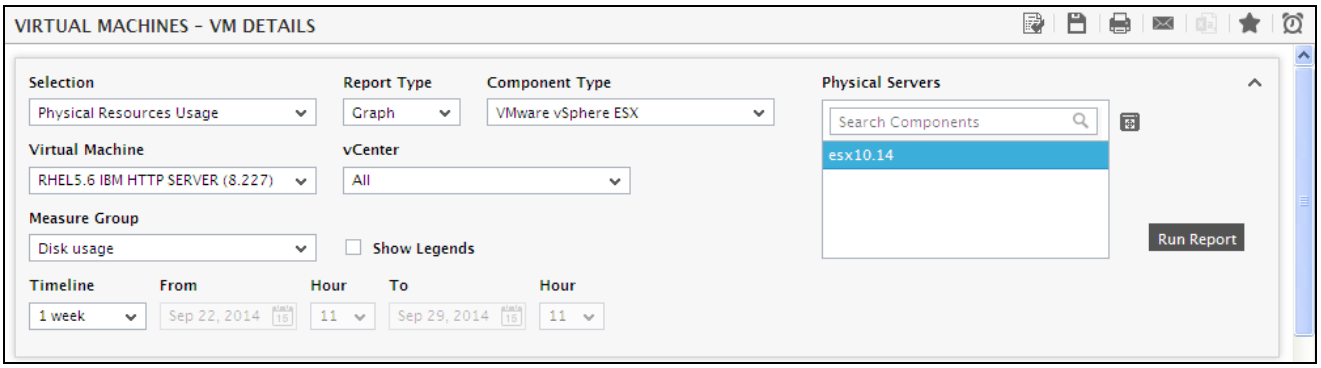

Figure 9.23: Specifying the criteria for generating the *PHYSICAL RESOURCES USAGE* report

3. Next, select **Graph** from the **Report Type** field to generate a graphical report. For a data report, select the **Data** option.
4. Pick the virtual component type for which the report is to be generated from the **Component Type** list.
5. All the guests executing on all managed components of the chosen **Component Type** will then be available in the **Virtual Machine** list. By default, if eG Enterprise discovers over 100 VMs on physical servers of the chosen type, then a **Filter by** field will appear in Figure 9.23 (not shown in Figure 9.23) to enable you to trim down the **Virtual Machine** list and quickly locate the VM that interests you. To filter the VM list, just enter the whole/part of the VM name that you are looking for in the **Filter by** text box and click the **right-arrow button** next to it. Only those VMs with names that embed the specified string will then be listed in the **Virtual Machine** list. Pick a VM from this list to focus on its performance.

As stated earlier, by default, the **Filter by** text box appears if the number of VMs is equal to or over 100. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MEASURE_GROUP]** section of the file, set the **MoreVMs** to a different value. The default is 100.
- Save the file.

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6. If you want to analyze the performance of the chosen VM only on those ESX servers that are managed by a particular vCenter server, pick this server from the **vCenter** list. Upon selecting a vCenter, the ESX servers managed by that vCenter server will be available for selection in the **Physical Servers** list.
7. Selecting **All** from the **vCenter** list on the other hand allows you to compare the performance of the VM across all ESX servers, regardless of whether/not they are managed by vCenter. In this case therefore, all eG-managed ESX servers will be available for selection in the **Physical Servers** list.
8. Pick one/more of the physical servers listed in the **Physical Servers** list for report generation. If this list consists of too many physical servers, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Physical**

Servers list. The **PHYSICAL SERVERS** pop up window will then appear using which you can view almost all the physical severs in a single interface and select the ones for which the report is to be generated.

9. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

10. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more **Physical Servers**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.24). The steps below discuss each of these settings and how they can be customized.

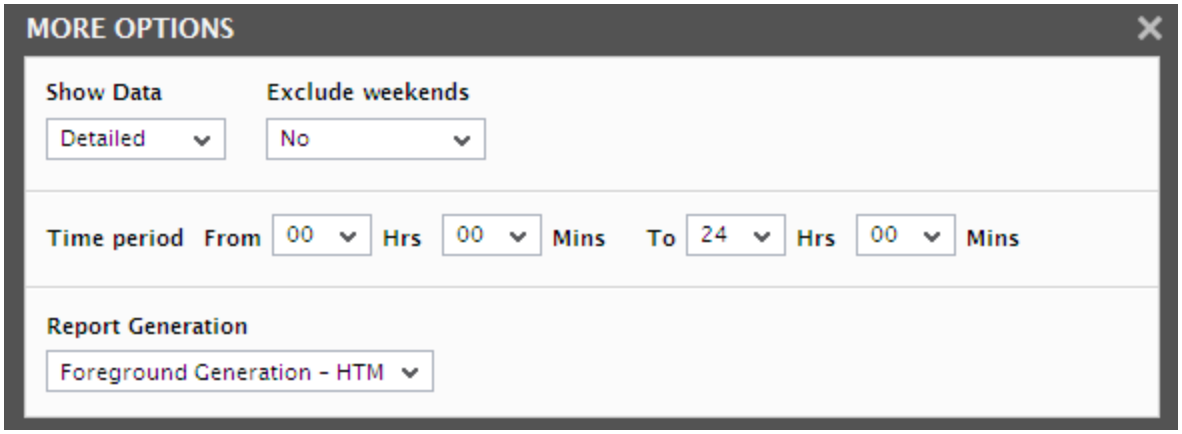

Figure 9.24: The default settings for generating a Physical Resources Usage report

11. eG Enterprise collects a wide range of physical resource usage metrics - i.e., 'outside view' metrics - from a VM. Using the **Physical Resources Usage** report, you can focus on how a chosen VM utilizes a specific resource - say CPU, memory, disk space, etc. For this purpose, by default, eG Enterprise groups the physical resource usage-

metrics of a VM into four different 'resource groups', based on the 'resource type'. These groups are, namely: *Memory usage*, *CPU usage*, *Disk usage*, and *Network usage*. For instance, all key metrics related to memory usage - eg., allocated memory size, Memory max limited, Target memory, etc. - are by default included in the *Memory usage* group. Also, to provide administrators with a clearer view of a VM's resource usage, eG Enterprise, by default, computes the *Avg* and *Max* values of every metric in a group, and displays one/all of the computed values in the report. To know how the chosen VM has used a particular resource across the selected **Components**, pick one of the above-mentioned resource groups from the **Measure Group** list. On the other hand, if you want to generate a report that brings out the overall resource usage of a VM across the chosen **Components**, then select **All** from the **Measure Group** list.

The default resource groups - *Memory usage*, *CPU usage*, *Disk usage*, and *Network usage* - are hard-coded in the eG Enterprise system. The names of these groups cannot be changed, and no new resource groups can be introduced. However, if need be, additional metrics can be included in the default groups, and additional functions can be applied to any of the grouped metrics. For instance to add the *CPU guaranteed to VM* metric to the *CPU usage* group, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MEASURE_GROUP]** section of the file, insert a line for the new metric, in the following format:

Cpu_usage:<InternalTestName>:<InternalMeasureName>=<Comma-separated list of functions>

For the *CPU guaranteed to VM* measure therefore, your specification should be:

Cpu_usage:EsxGuestTest:Cpu_guaranteed=Avg,Max

To know the *<InternalTestName>* and *<InternalMeasureName>*, refer to the procedure discussed in Page 212 of this document.

- Finally, save the file.

Similarly, new metrics/functions can be added to the *Memory_usage, Disk_usage*, and *Network_usage* groups.

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12. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.24. By default, the **Detailed** option

is selected in Figure 9.24 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
  - For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
  - To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

---

13. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MEASURE_GROUP]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

14. Next, indicate the report **Time period**.
15. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

16. Finally, click the **Run Report** button.
17. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 9.25. The **Graph** report applies the first of the configured functions (i.e., *Avg* by default) on every metric in the chosen group, and generates time-of-day graphs revealing the variations in the computed values across the chosen **Components** during the specified

period. These graphs help determine whether/not the chosen VM has made optimal use of the critical resource on every physical server that it has been moved to during the stated period, and enables you to understand whether excessive usage of the chosen resource by the VM is the reason for its movement.

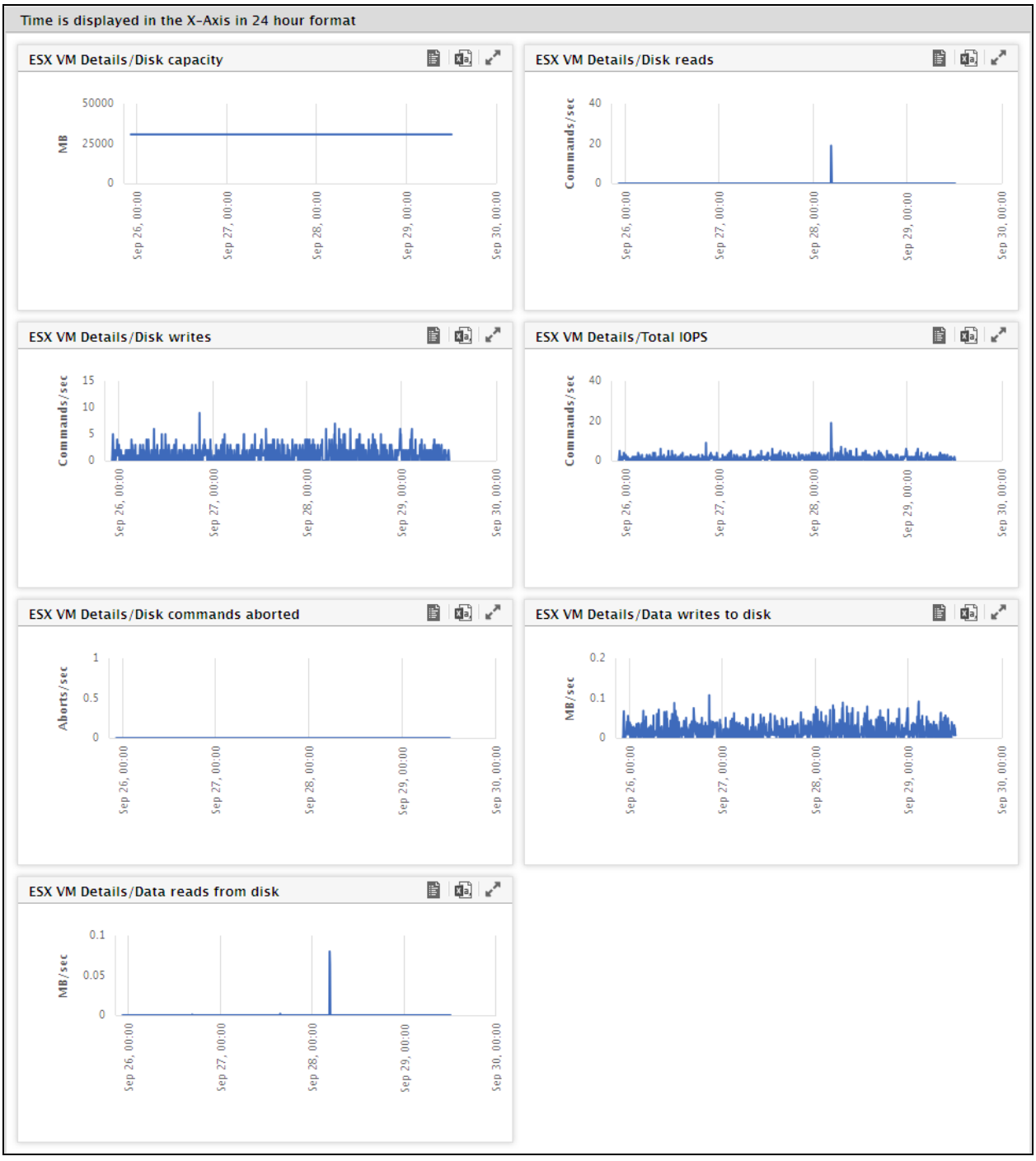
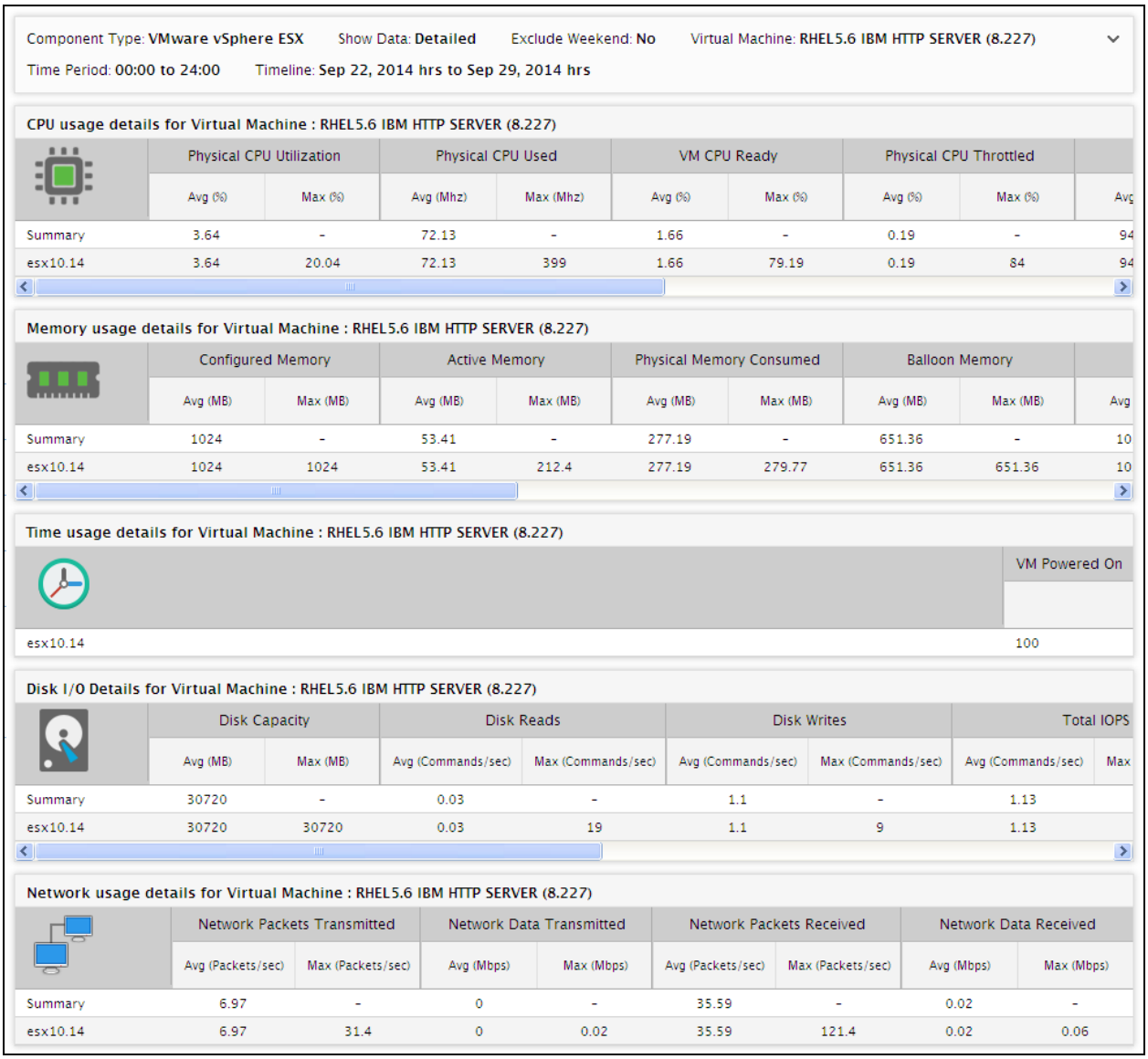


Figure 9.25: A graphical Physical Resources Usage report

18. If the **Report Type** were **Data**, then you would not be required to choose a **Measure Group**. The **Data** report applies all the configured functions (i.e., both *Avg* and *Max* by default) on every metric in every measure group

for each **Component** chosen, and displays all the computed values in a tabular format, once the **Run Report** button is clicked (see Figure 9.26). Under the individual measure groups, a component-wide **Summary** of each metric will be available, followed by the details of the resource usage of every component. In addition, the **Data** report also reveals how much time the VM spent on each of the chosen **Components**; this way, any change in the performance of the physical server during that time can be attributed to the presence of the VM. To focus on the performance of all the VMs on a particular virtual component, click on any of the component links in the data report. Figure 9.27 then appears indicating how every VM executing on that component has performed during the given period.



Component Type: **VMware vSphere ESX** Show Data: **Detailed** Exclude Weekend: **No** Virtual Machine: **RHEL5.6 IBM HTTP SERVER (8.227)**

Time Period: **00:00 to 24:00** Timeline: **Sep 22, 2014 hrs to Sep 29, 2014 hrs**

CPU usage details for Virtual Machine : RHEL5.6 IBM HTTP SERVER (8.227)

	Physical CPU Utilization		Physical CPU Used		VM CPU Ready		Physical CPU Throttled		
	Avg (%)	Max (%)	Avg (Mhz)	Max (Mhz)	Avg (%)	Max (%)	Avg (%)	Max (%)	Avg
Summary	3.64	-	72.13	-	1.66	-	0.19	-	94
esx10.14	3.64	20.04	72.13	399	1.66	79.19	0.19	84	94

Memory usage details for Virtual Machine : RHEL5.6 IBM HTTP SERVER (8.227)

	Configured Memory		Active Memory		Physical Memory Consumed		Balloon Memory		
	Avg (MB)	Max (MB)	Avg (MB)	Max (MB)	Avg (MB)	Max (MB)	Avg (MB)	Max (MB)	Avg
Summary	1024	-	53.41	-	277.19	-	651.36	-	10
esx10.14	1024	1024	53.41	212.4	277.19	279.77	651.36	651.36	10

Time usage details for Virtual Machine : RHEL5.6 IBM HTTP SERVER (8.227)

	VM Powered On
esx10.14	100

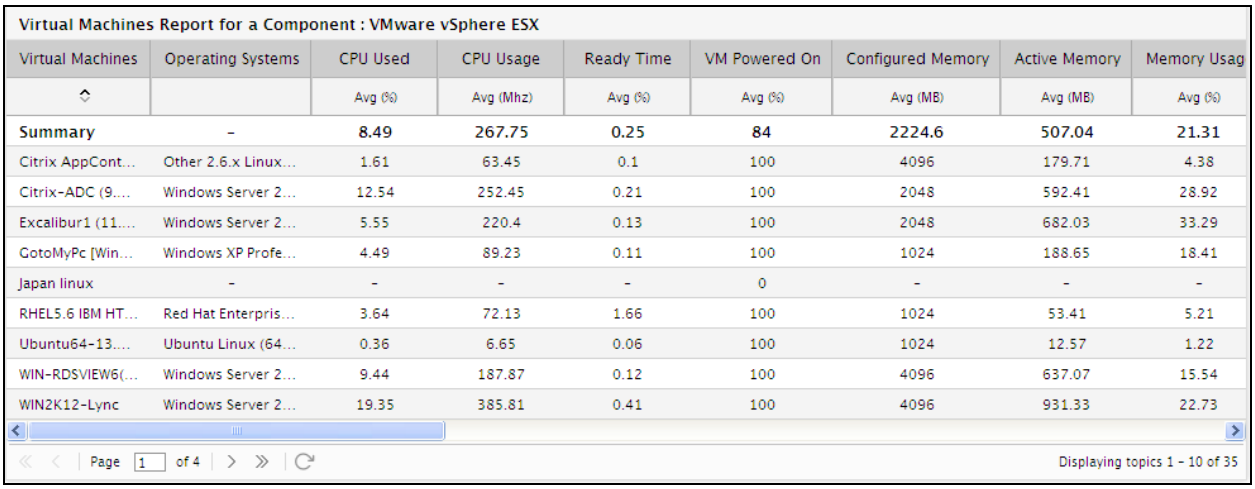
Disk I/O Details for Virtual Machine : RHEL5.6 IBM HTTP SERVER (8.227)

	Disk Capacity		Disk Reads		Disk Writes		Total IOPS	
	Avg (MB)	Max (MB)	Avg (Commands/sec)	Max (Commands/sec)	Avg (Commands/sec)	Max (Commands/sec)	Avg (Commands/sec)	Max
Summary	30720	-	0.03	-	1.1	-	1.13	
esx10.14	30720	30720	0.03	19	1.1	9	1.13	

Network usage details for Virtual Machine : RHEL5.6 IBM HTTP SERVER (8.227)

	Network Packets Transmitted		Network Data Transmitted		Network Packets Received		Network Data Received	
	Avg (Packets/sec)	Max (Packets/sec)	Avg (Mbps)	Max (Mbps)	Avg (Packets/sec)	Max (Packets/sec)	Avg (Mbps)	Max (Mbps)
Summary	6.97	-	0	-	35.59	-	0.02	-
esx10.14	6.97	31.4	0	0.02	35.59	121.4	0.02	0.06

Figure 9.26: A Physical Resources Usage report of type Data



Virtual Machines Report for a Component : VMware vSphere ESX

Virtual Machines	Operating Systems	CPU Used	CPU Usage	Ready Time	VM Powered On	Configured Memory	Active Memory	Memory Usag
		Avg (%)	Avg (Mhz)	Avg (%)	Avg (%)	Avg (MB)	Avg (MB)	Avg (%)
Summary	-	**8.49**	**267.75**	**0.25**	**84**	**2224.6**	**507.04**	**21.31**
Citrix AppCont...	Other 2.6.x Linux...	1.61	63.45	0.1	100	4096	179.71	4.38
Citrix-ADC (9....	Windows Server 2...	12.54	252.45	0.21	100	2048	592.41	28.92
Excalibur1 (11....	Windows Server 2...	5.55	220.4	0.13	100	2048	682.03	33.29
GotoMyPc [Win...	Windows XP Profe...	4.49	89.23	0.11	100	1024	188.65	18.41
Japan linux	-	-	-	-	0	-	-	-
RHEL5.6 IBM HT...	Red Hat Enterpris...	3.64	72.13	1.66	100	1024	53.41	5.21
Ubuntu64-13....	Ubuntu Linux (64...	0.36	6.65	0.06	100	1024	12.57	1.22
WIN-RDSVIEW6(...	Windows Server 2...	9.44	187.87	0.12	100	4096	637.07	15.54
WIN2K12-Lync	Windows Server 2...	19.35	385.81	0.41	100	4096	931.33	22.73

Page 1 of 4 Displaying topics 1 - 10 of 35

Figure 9.27: A Virtual Machines report revealing the health of each VM discovered on a chosen virtual host

19. The **Data** report explores the overall resource usage of a VM across all the physical servers that it has visited during the given period. Using this report, you can accurately identify which resources have been over-utilized by the VM and on which physical server.

Virtual Resources Usage Report

The **Virtual Resources Usage** report turns an administrator's attention to resource-intensive VMs and improper resource allocations to a VM.

To generate this report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Virtual Machines -> VM Details* in the eG Reporter interface.
2. From the **Selection** list in Figure 9.28, pick the **Virtual Resources Usage** option.

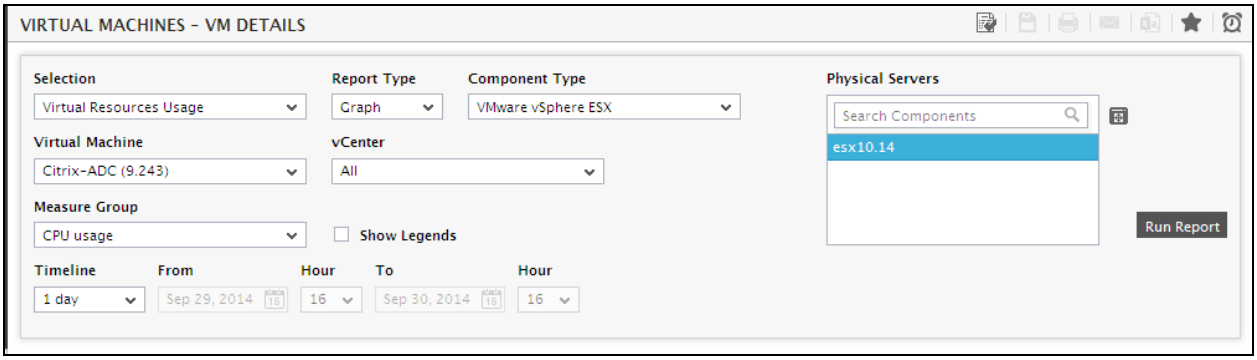


Figure 9.28: Specifying the criteria for generating the Virtual Resources Usage report

3. Next, select **Graph** from the **Report Type** field to generate a graphical report. For a data report, select the **Data** option.
4. Pick the virtual component type for which the report is to be generated from the **Component Type** list.
5. All the guests executing on all managed components of the chosen **Component Type** will then be available in

the **Virtual Machine** list. By default, if eG Enterprise discovers over 100 VMs on physical servers of the chosen type, then a **Filter by** field will appear in Figure 9.28 (not shown in Figure 9.28) to enable you to trim down the **Virtual Machine** list and quickly locate the VM that interests you. To filter the VM list, just enter the whole/part of the VM name that you are looking for in the **Filter by** text box and click the **right-arrow button** next to it. Only those VMs with names that embed the specified string will then be listed in the **Virtual Machine** list. Pick a VM from this list to focus on its performance.

As stated earlier, by default, the **Filter by** text box appears if the number of VMs is equal to or over 100. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_MEASURE_GROUP]** section of the file, set the **MoreVMs** to a different value. The default is 100.
- Save the file.

6. If you want to analyze the performance of the chosen VM only on those ESX servers that are managed by a particular vCenter server, pick this server from the **vCenter** list. Upon selecting a vCenter, the ESX servers managed by that vCenter server will be available for selection in the **Physical Servers** list.
7. Selecting **All** from the **vCenter** list on the other hand allows you to compare the performance of the VM across all ESX servers, regardless of whether/not they are managed by vCenter. In this case therefore, all eG-managed ESX servers will be available for selection in the **Physical Servers** list.
8. Pick one/more of the physical servers listed in the **Physical Servers** list for report generation. If this list consists of too many physical servers, then viewing all the servers and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Physical Servers** list. This will expand the **Physical Servers** list so that you can view almost all the components in a single interface and select the ones for which the report is to be generated.
9. eG Enterprise collects a wide range of virtual resource usage metrics - i.e., 'inside view' metrics - from a VM. Using the **Virtual Resources Usage** report, you can focus on how a chosen VM utilizes a specific resource - say CPU, memory, disk space, etc. For this purpose, by default, eG Enterprise groups the virtual resource usage metrics of a VM into six different 'resource groups', based on the 'resource type'. These groups are, namely: *Memory* usage, *CPU usage* , *Disk usage*, *Network usage*, *Tcp Connection*, and *Uptime Status*. For instance, all key metrics related to memory usage – e.g., allocated memory size, Memory max limited, Target memory, etc. - are by default included in the *Memory usage* group. Also, to provide administrators with a clearer view of a VM's resource usage, eG Enterprise, by default, computes the *Avg* and *Max* values of every metric in a group, and displays these values in the report. To know how the chosen VM has used a particular resource across the selected **Components**, pick one of the above-mentioned resource groups from the **Measure Group** list. On the other hand, if you want to generate a report that brings out the overall resource usage of a VM across the chosen **Components**, then select **All** from the **Measure Group** list.

The default resource groups *Memory* usage, *CPU usage*, *Disk usage*, *Network usage*, *Tcp Connection*, and *Uptime Status* - are hard-coded in the eG Enterprise system. The names of these groups cannot be changed, and no new resource groups can be introduced. However, if need be, additional metrics can be included in the default groups, and additional functions can be applied to any of grouped metrics. For instance to add the *Run queue in VM* metric to the *CPU usage* group, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_MEASURE_GROUP]** section of the file, insert a line for the new metric, in the following format:

Cpu_usage:<InternalTestName>:<InternalMeasureName>=<Comma-separated list of functions>

For the *Run queue in VM* measure therefore, your specification should be:

Cpu_usage:VmgSystemTest:Run_ueue_length=Avg,Max

- To know the *<InternalTestName>* and *<InternalMeasureName>*, refer to the procedure discussed in Page 212 of this document.
- Finally, save the file.

Similarly, new metrics/functions can be added to the *Memory_usage*, *Disk_usage*, *Network_usage*, *Tcp Connection*, and *Uptime Status* groups.

10. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

11. In addition to the settings discussed above, this report comes with a set of default specifications. These settings

are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **RUN REPORT BUTTON** soon after you pick one/more **Physical Servers**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.29). The steps below discuss each of these settings and how they can be customized.

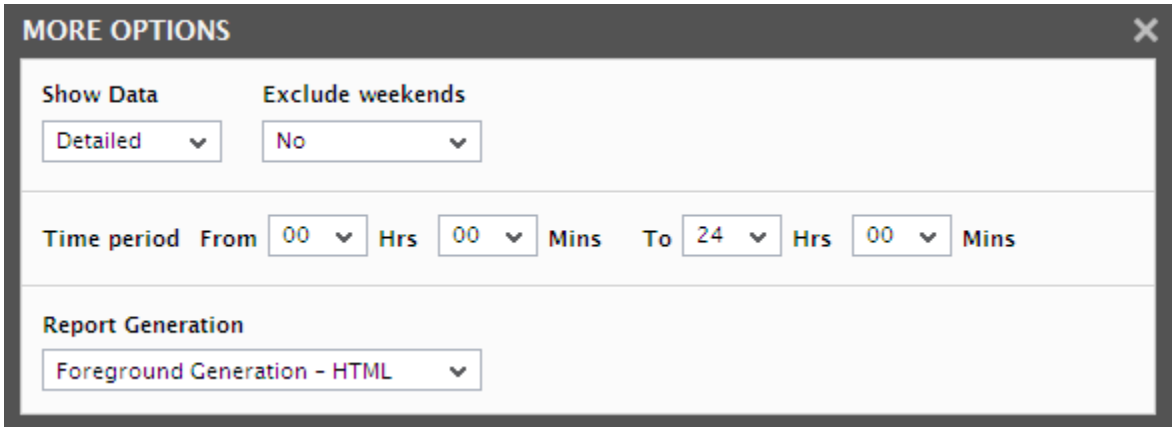


Figure 9.29: The default settings for generating the Virtual Resources Usage report

12. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.29. By default, the **Detailed** option is selected in Figure 9.29 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

   - Login to the eG administrative interface as 'admin'.
   - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
   - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
  - For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
  - To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

13. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_MEASURE_GROUP]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

14. Next, indicate the report **Time period**.
15. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

16. Finally, click the **Run Report** button. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then clicking on the **Run Report** button invokes Figure 9.30. The **Graph** report applies the first of the configured functions (i.e., *Avg* by default) on every metric in the chosen group, and generates time-of-day graphs revealing the variations in the computed values across the

chosen **Components** during the specified period. These graphs help determine whether applications executing on the VM are consuming the resources allocated to the VM excessively, or whether the VMs are inadequately sized.

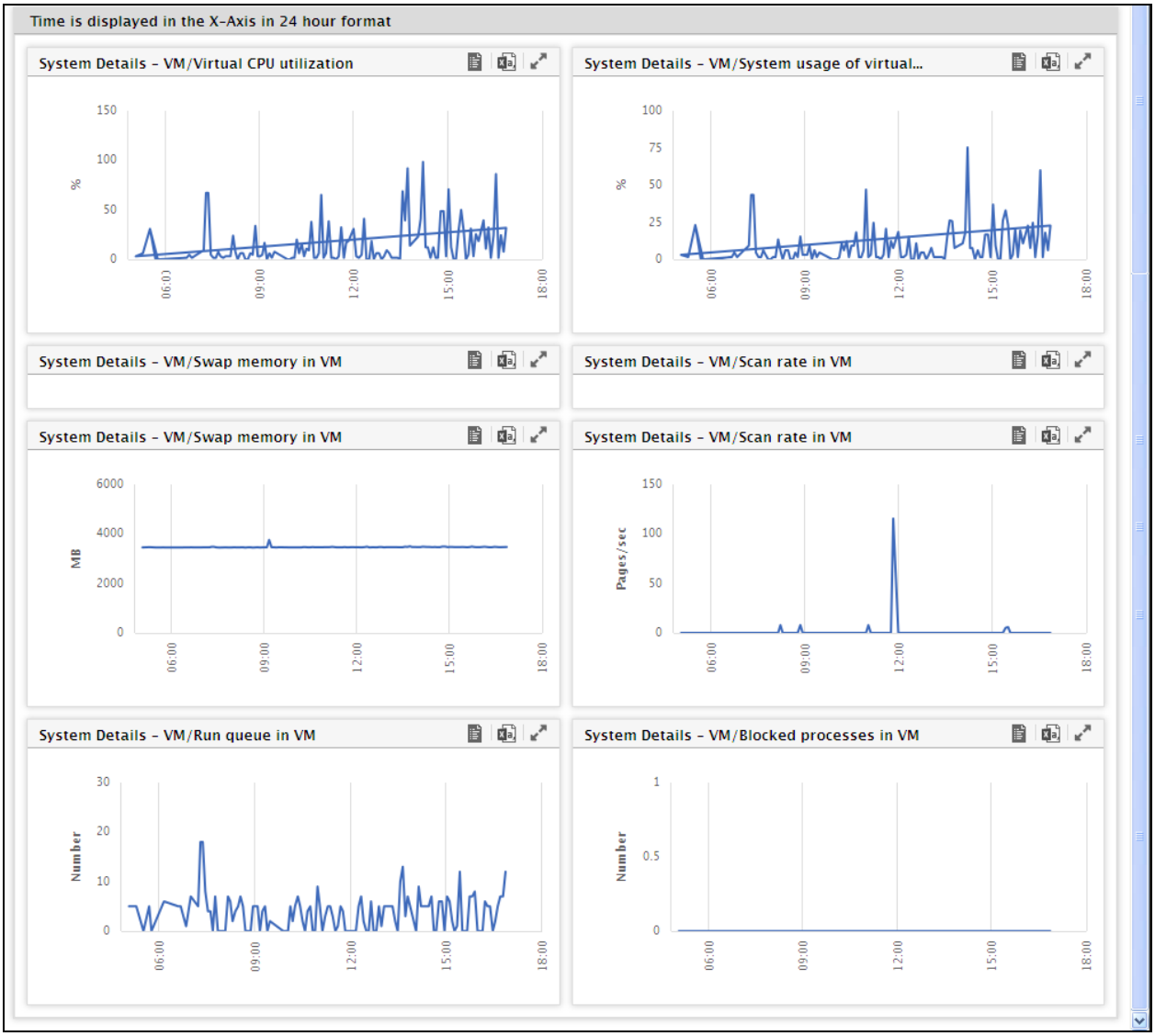
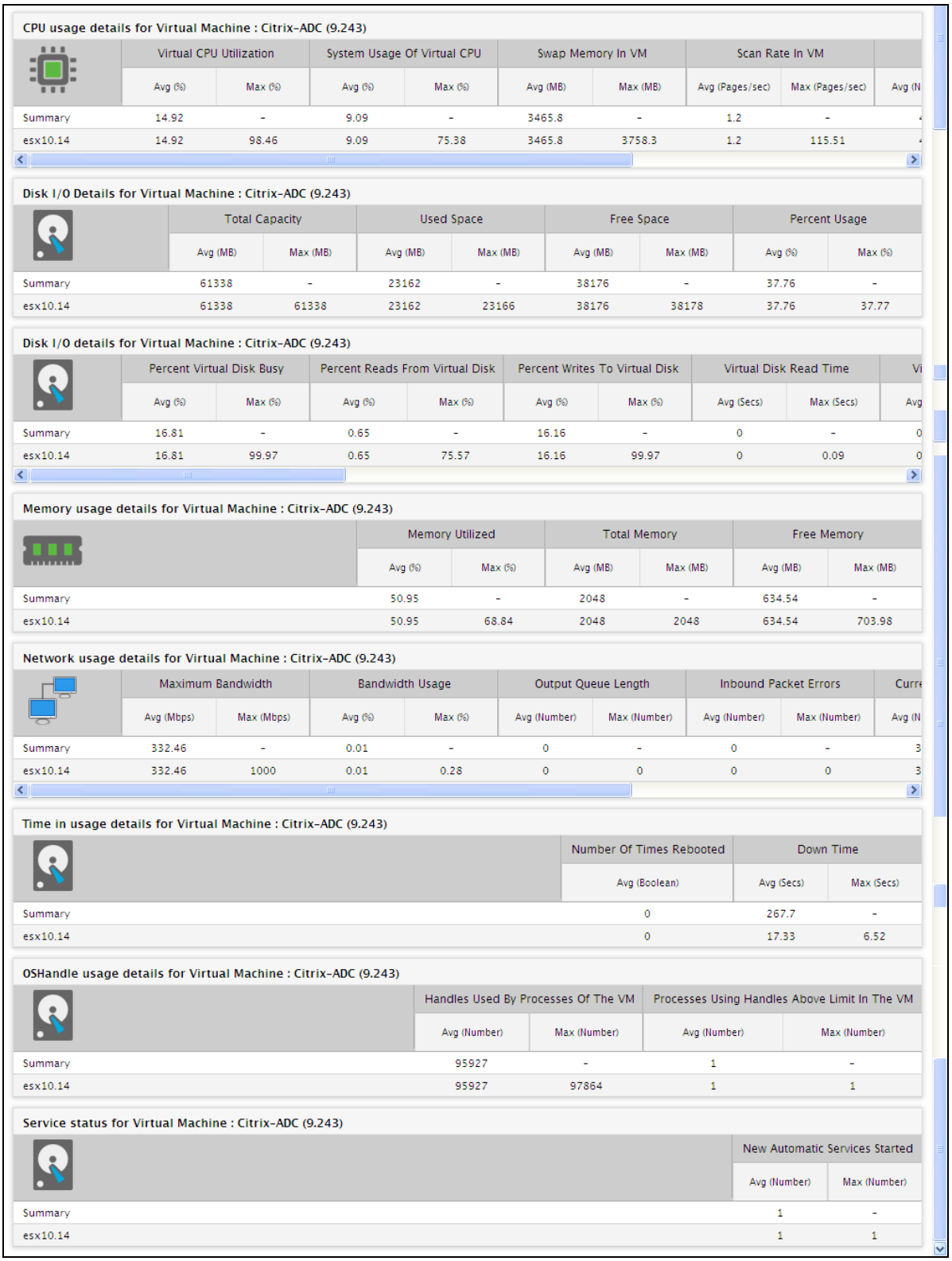


Figure 9.30: A graphical Virtual Resources Usage report

17. If the **Report Type** were **Data**, then you would not be required to choose a **Measure Group**. The **Data** report applies all the configured functions (i.e., both *Avg* and *Max* by default) on every metric in every measure group, and displays all the computed values in a tabular format, once the **Run Report** button is clicked (see Figure 9.31). Under the individual measure groups, a component-wide **Summary** of each metric will be available, followed by the details of the resource usage of every component. To zoom into the overall health of all the VMs executing on a particular **Component** (i.e., physical server) displayed in the data report, click on the component. Figure 9.32 appears allowing you a sneak peek at the performance of every VM executing on that virtual host.



CPU usage details for Virtual Machine : Citrix-ADC (9.243)

	Virtual CPU Utilization		System Usage Of Virtual CPU		Swap Memory In VM		Scan Rate In VM		
	Avg (%)	Max (%)	Avg (%)	Max (%)	Avg (MB)	Max (MB)	Avg (Pages/sec)	Max (Pages/sec)	Avg (N
Summary	14.92	-	9.09	-	3465.8	-	1.2	-	
esx10.14	14.92	98.46	9.09	75.38	3465.8	3758.3	1.2	115.51	

Disk I/O Details for Virtual Machine : Citrix-ADC (9.243)

	Total Capacity		Used Space		Free Space		Percent Usage	
	Avg (MB)	Max (MB)	Avg (MB)	Max (MB)	Avg (MB)	Max (MB)	Avg (%)	Max (%)
Summary	61338	-	23162	-	38176	-	37.76	-
esx10.14	61338	61338	23162	23166	38176	38178	37.76	37.77

Disk I/O details for Virtual Machine : Citrix-ADC (9.243)

	Percent Virtual Disk Busy		Percent Reads From Virtual Disk		Percent Writes To Virtual Disk		Virtual Disk Read Time		Vi
	Avg (%)	Max (%)	Avg (%)	Max (%)	Avg (%)	Max (%)	Avg (Secs)	Max (Secs)	Avg
Summary	16.81	-	0.65	-	16.16	-	0	-	0
esx10.14	16.81	99.97	0.65	75.57	16.16	99.97	0	0.09	0

Memory usage details for Virtual Machine : Citrix-ADC (9.243)

	Memory Utilized		Total Memory		Free Memory	
	Avg (%)	Max (%)	Avg (MB)	Max (MB)	Avg (MB)	Max (MB)
Summary	50.95	-	2048	-	634.54	-
esx10.14	50.95	68.84	2048	2048	634.54	703.98

Network usage details for Virtual Machine : Citrix-ADC (9.243)

	Maximum Bandwidth		Bandwidth Usage		Output Queue Length		Inbound Packet Errors		Curr
	Avg (Mbps)	Max (Mbps)	Avg (%)	Max (%)	Avg (Number)	Max (Number)	Avg (Number)	Max (Number)	Avg (N
Summary	332.46	-	0.01	-	0	-	0	-	3
esx10.14	332.46	1000	0.01	0.28	0	0	0	0	3

Time in usage details for Virtual Machine : Citrix-ADC (9.243)

	Number Of Times Rebooted	Down Time	
	Avg (Boolean)	Avg (Secs)	Max (Secs)
Summary	0	267.7	-
esx10.14	0	17.33	6.52

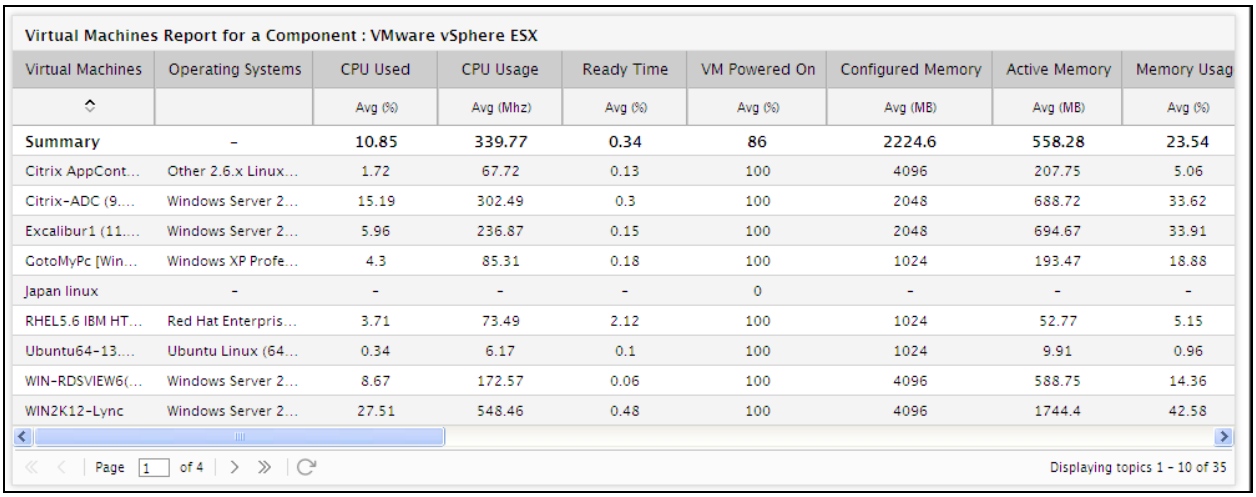
OSHandle usage details for Virtual Machine : Citrix-ADC (9.243)

	Handles Used By Processes Of The VM		Processes Using Handles Above Limit In The VM	
	Avg (Number)	Max (Number)	Avg (Number)	Max (Number)
Summary	95927	-	1	-
esx10.14	95927	97864	1	1

Service status for Virtual Machine : Citrix-ADC (9.243)

	New Automatic Services Started	
	Avg (Number)	Max (Number)
Summary	1	-
esx10.14	1	1

Figure 9.31: A Virtual Resources Usage report of type Data



Virtual Machines Report for a Component : VMware vSphere ESX

Virtual Machines	Operating Systems	CPU Used	CPU Usage	Ready Time	VM Powered On	Configured Memory	Active Memory	Memory Usag
		Avg (%)	Avg (Mhz)	Avg (%)	Avg (%)	Avg (MB)	Avg (MB)	Avg (%)
Summary	-	**10.85**	**339.77**	**0.34**	**86**	**2224.6**	**558.28**	**23.54**
Citrix AppCont...	Other 2.6.x Linux...	1.72	67.72	0.13	100	4096	207.75	5.06
Citrix-ADC (9....	Windows Server 2...	15.19	302.49	0.3	100	2048	688.72	33.62
Excalibur1 (11....	Windows Server 2...	5.96	236.87	0.15	100	2048	694.67	33.91
GotoMyPc [Win...	Windows XP Profe...	4.3	85.31	0.18	100	1024	193.47	18.88
Japan linux	-	-	-	-	0	-	-	-
RHEL5.6 IBM HT...	Red Hat Enterpris...	3.71	73.49	2.12	100	1024	52.77	5.15
Ubuntu64-13....	Ubuntu Linux (64...	0.34	6.17	0.1	100	1024	9.91	0.96
WIN-RDSVIEW6(...	Windows Server 2...	8.67	172.57	0.06	100	4096	588.75	14.36
WIN2K12-Lync	Windows Server 2...	27.51	548.46	0.48	100	4096	1744.4	42.58

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Figure 9.32: A Virtual Machines report revealing the health of each VM discovered on a chosen virtual host

18. The **Data** report explores the overall resource usage of a VM across all the physical servers that it has visited during the given period. Using this report, you can accurately identify which virtual resources have been over-utilized by the VM and on which physical server.

19. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report button** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the icon in that page.

9.6 The VM Sprawl Report

Large virtualized environments are typically characterized by a multitude of virtual hosts, each hosting tens of virtual machines. Administrators need to periodically review the usage of these VMs in order to identify those VMs that have been utilized optimally and those that have been under-utilized. Since each VM, regardless of its powered-on state and user activity, consumes disk space and memory, the knowledge of unused/under-used VMs will enable administrators to decide whether/not to pull down such VMs in an effort to conserve valuable physical resources. The resources thus released may be used to support critical operations performed by other VMs or to avert slowdowns/performance degradations experienced by mission-critical applications executing on these VMs.

To provide administrators with insights into the state and usage of VMs across their virtualized environment, and to enable them to instantly identify unused VMs, eG Enterprise offers the **VM Sprawl** report. Using this report, administrators can figure out the following:

- How many VMs across the environment are in a powered-off state? Which ones are they?
- What percentage of time has a VM been in a powered-off state?
- Are there any powered-on VMs to which users have not logged in for a long time? If so, which ones are they?
- How much memory and disk space has each unused VM been configured with? Can the removal of these unused VMs improve the performance of other VMs and applications executing on them?

To generate this report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Virtual Machines -> VM Sprawl* in the eG Reporter interface. Figure 9.33 then appears.

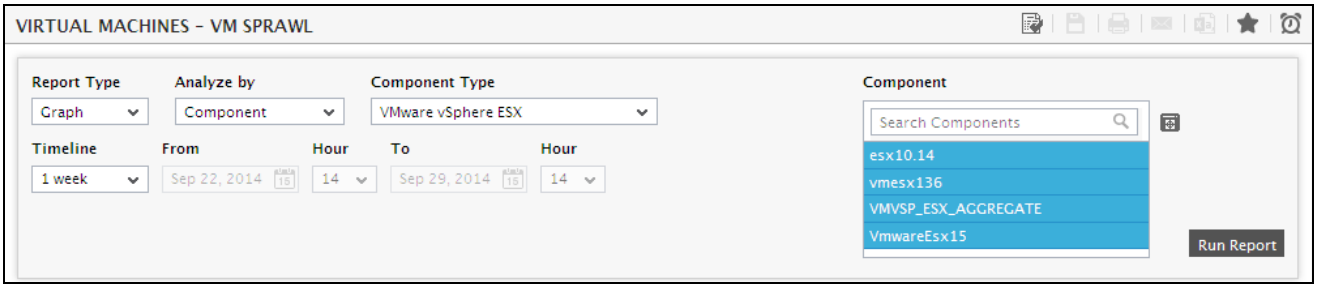

Figure 9.33: Providing the specifications for the VM SPRAWL report

2. As shown in Figure 9.33, for a graphical report, select **Graph** as the **Report Type**. For a tabular report, select **Data**.

3. Then, select a criterion for analysis from the **Analyze by** list box. Using this report, you can analyze the performance of one/more independent virtualized components, or those that are part of a **Zone**. The options provided by the **Analyze by** list box are discussed hereunder:

   - **Component**: Select this option to choose the component(s) from across all the managed components in the environment. For instance, for a report on the performance of all the managed ESX hosts in the environment, select *VMware vSphere ESX* from the **Component Type** list, select **Component** from the **Analyze by** list, and then select all the virtual hosts listed in the **Component** list.

   - **Zone**: Pick this option for a report on the performance of virtual components that are included in a zone. Then, choose a **Zone**. When a zone is picked, the **Include Subzone** flag is set to "Yes" by default, indicating that the virtual components within the Subzones of the chosen zone will also be considered for report generation. To exclude Subzones from the scope of your report, set this flag to "No". The **Component Types** list will then be populated with the virtual component types that are part of the chosen zone (and Subzone, if **Include Subzone** is set to "**Yes**"). Selecting a type from this list will populate the **Components** list with all components of that type, which are present in the selected zone. Select the required components from this list.

By default, the **Component Types** that are supported by this report are specified in the **eg_report.ini** file available in the **{EG_INSTALL_DIR}\manager\config** directory. To extend support to a new virtual component type, edit the **eg_report.ini** file, and append the internal name of the new component-type to the comma-separated list of types that pre-exists against the **Components** parameter in the **[VM_SPRAWL]** section of the file. For example, if an *IBM pSeries* **Component Type** has to be included in the **eg_report.ini** file, then include *pSeries_server* (internal name of the IBM pseries) to the comma-separated list of **Components** as indicated below:

Components=Oracle_vm_server,VMWare_VDI_Box,Xen_VDI_Box,HyperV_VDI_Box,Redhat_linux_hpv, Redhat_linux_vdi,Oracle_vdi_VirtualBox,Vmware_esx_server,VmEsx_i_server,Xen_virtual_server, Hyperv_server,Vmware_vdi_server,VmVdi_i_server,Xen_desktop_server,HyperV_VDI_server, pSeries_server,KVM_server,KVM_vdi_server

4. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
5. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more components from the **Components** list. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.35). The steps below discuss

each of these settings and how they can be customized.

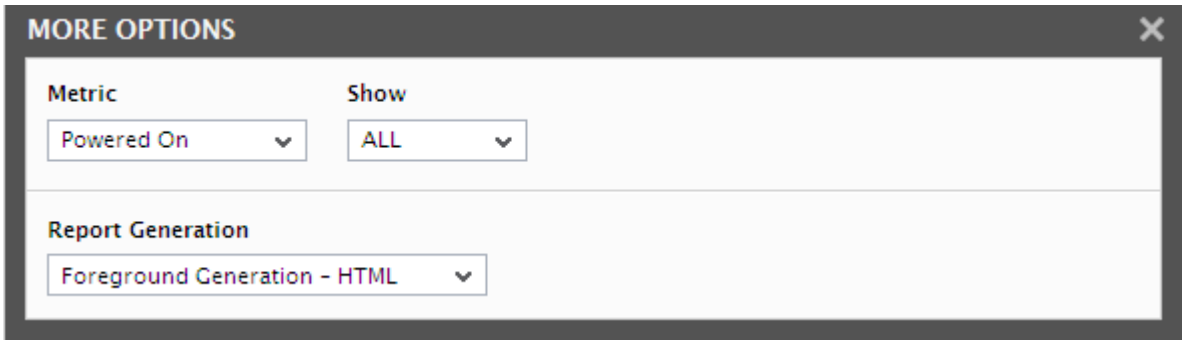

Figure 9.34: The default settings for generating the VM Sprawl report

7. Select one of the following options from the **Metric** drop down list.
   - For ESX hosts in the environment, the default selection from the **Metric** drop-down is **Powered On**.
   - For VDI environments, the **Metric** drop-down will provide an additional **Powered On With User** option.
8. Then, select a convenient show option from the **Show** drop list.

Note

The **Show** drop down list appears only when a graphical report is to be generated. The selection from this list governs the maximum number of VMs to be displayed in the bar graph. The default options of the **Show** list are: Top-25, Top-50, All, Last-25, Last-50. This default setting is governed by the **ShowTop** parameter in the **[VM_SPRAWL]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory). By default, this **ShowTop** parameter is set to 50. To view bar graphs for a more or less number of VMs, you may want to change this value. For example, if you set **ShowTop** to 100, then, the **Show** drop-down list in the report page will provide administrators with the following options: Top-100, Top-50, All, Last-100, and Last-50.

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9. eG Enterprise allows users to generate desired reports for a specific time period. In large environments, while generating reports for long time periods, say a few weeks to months, report generation was found to slow down, owing to the large volume of data being processed. If users needed to generate many such reports quickly, the slowdown compelled them to generate these reports one after another, thus affecting the speed of their operations, and consequently, their productivity. eG Enterprise now includes a background processing feature that will enable users to process multiple reports, spanning long time periods in the background, while allowing them the bandwidth to generate short-term reports in the foreground. This way, users can generate multiple reports with little-to-no loss of time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation** list will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because; the **MinDurationForReport** setting governs, when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

Note

10. Finally, click the **Run Report** button to generate the report.

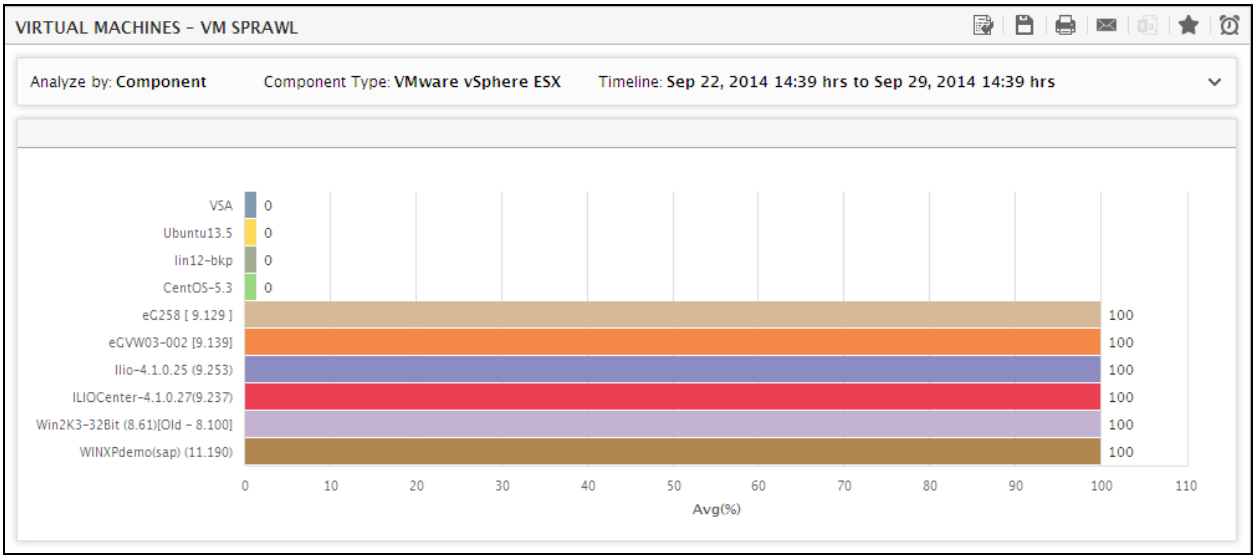
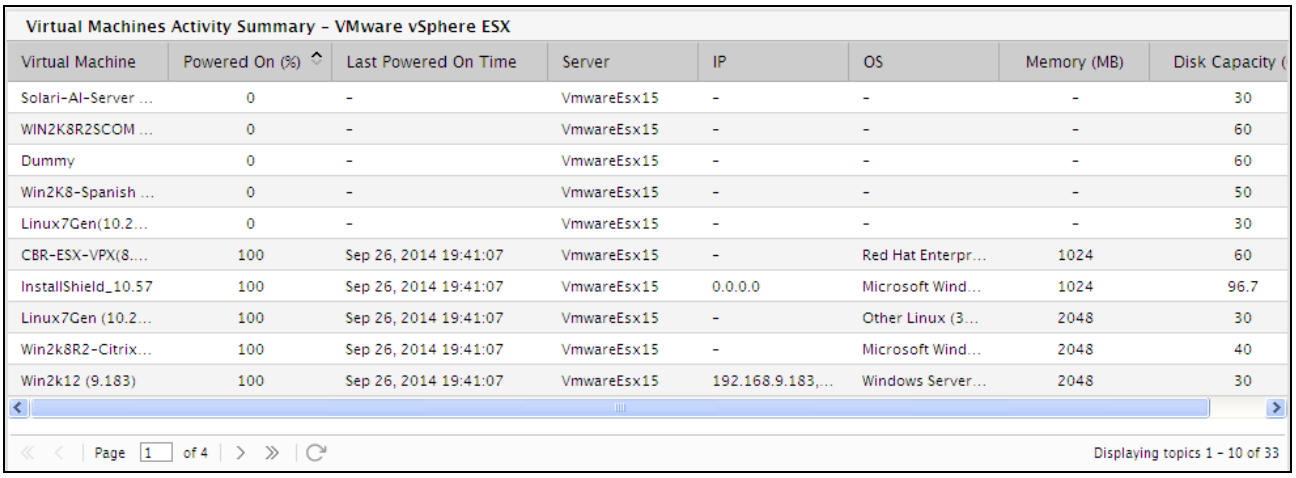


Figure 9.35: Graph showing the Powered On state of the VMs

11. For ESX virtual hosts environment, if the **Report Type** is **Graph**, you will view a report comprising a bar chart that reveals the VMs that have been configured on all the chosen virtual hosts, and the percentage of time (during the chosen **Timeline**) for which each VM has been in a powered-on state. Using this graph, you can instantly identify VMs that have remained in a powered-off state for a considerably long time; this way, VMs that have been unnecessarily eroding the allocated resources can be identified. Figure 9.35 shows the bar graph of this report.
12. For VDI environments, if the **Display** option chosen is **Powered On With User**, then, the resulting bar chart will reveal the percentage of time each VM in the environment has been in the powered on state with a user logged in. Using this graph, you can not only identify VMs that have been powered-off for a long time, but also powered-on VMs that have remained idle for a long time.

You can configure the bar colors of the bar chart in the report, by editing the **eg_report.ini** file in the **{EG_INSTALL_DIR}\manager\config** directory. The **FusionColorForPowerOnPercent** parameter in the **[VM_SPRAWL]** section of the file defines the default colors of the bars in your graph. You can change any of the color codes to change the color of a bar.

13. Unlike a **Graph** report, a **Data** report does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report.
14. If the **Report Type** is **Data**, select a column name by which the report data is to be sorted from the **Sort by** list. Then, like in the case of a **Graph** report, specify a **Timeline** for which the report is to be generated and finally, click on the **Run Report button**.
15. For each VM configured on the chosen virtual components, the data report will display the percentage of time for which that VM was in a powered-on state during the stated timeline (Refer Figure 9.36). In addition, the **Last Powered On** time of a VM is also revealed - this is nothing but the last time the eG agent checked the status of the VM and found that it was powered-on. Using this information, you can determine whether the VM was powered-on or off during the last measurement period. Also the measures such as Memory and Disk Capacity can also be viewed per VM, thus enabling you to assess how removal of unused VMs will impact the resource availability on the host.



Virtual Machines Activity Summary - VMware vSphere ESX

Virtual Machine	Powered On (%)	Last Powered On Time	Server	IP	OS	Memory (MB)	Disk Capacity (
Solari-AI-Server ...	0	-	VmwareEsx15	-	-	-	30
WIN2K8R2SCOM ...	0	-	VmwareEsx15	-	-	-	60
Dummy	0	-	VmwareEsx15	-	-	-	60
Win2K8-Spanish ...	0	-	VmwareEsx15	-	-	-	50
Linux7Gen(10.2...	0	-	VmwareEsx15	-	-	-	30
CBR-ESX-VPX(8....	100	Sep 26, 2014 19:41:07	VmwareEsx15	-	Red Hat Enterpr...	1024	60
InstallShield_10.57	100	Sep 26, 2014 19:41:07	VmwareEsx15	0.0.0.0	Microsoft Wind...	1024	96.7
Linux7Gen (10.2...	100	Sep 26, 2014 19:41:07	VmwareEsx15	-	Other Linux (3...	2048	30
Win2k8R2-Citrix...	100	Sep 26, 2014 19:41:07	VmwareEsx15	-	Microsoft Wind...	2048	40
Win2k12 (9.183)	100	Sep 26, 2014 19:41:07	VmwareEsx15	192.168.9.183,...	Windows Server...	2048	30

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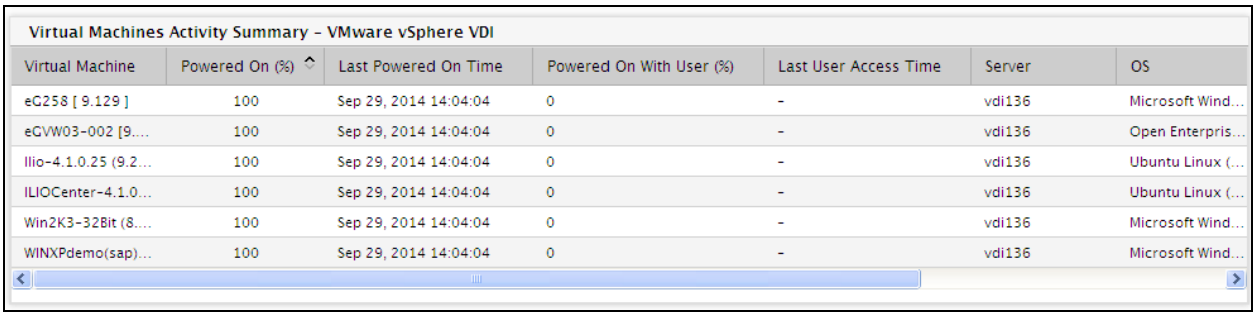
Figure 9.36: Data report of the VMs in ESX environments

16. In case of VDI environments, the data report will additionally reveal the percentage of time for which each VM was powered-on with an active user session; this way, you can quickly identify powered-on VMs that have been idle for long time periods. Also, a Last User Access Time will be available for each VM, which will reveal the last time a user had logged into that VM - this is nothing but the last time the eG agent checked the state of the VM and found that it was powered on with a user session active on it. Figure 9.37 will reveal the data report for the VDI environments.



Virtual Machines Activity Summary - VMware vSphere VDI

Virtual Machine	Powered On (%)	Last Powered On Time	Powered On With User (%)	Last User Access Time	Server	OS
eG258 [9.129]	100	Sep 29, 2014 14:04:04	0	-	vdi136	Microsoft Wind...
eGVW03-002 [9....	100	Sep 29, 2014 14:04:04	0	-	vdi136	Open Enterpris...
Ilio-4.1.0.25 (9.2...	100	Sep 29, 2014 14:04:04	0	-	vdi136	Ubuntu Linux (...
ILIOCenter-4.1.0...	100	Sep 29, 2014 14:04:04	0	-	vdi136	Ubuntu Linux (...
Win2K3-32Bit (8....	100	Sep 29, 2014 14:04:04	0	-	vdi136	Microsoft Wind...
WINXPdemo(sap)...	100	Sep 29, 2014 14:04:04	0	-	vdi136	Microsoft Wind...

Figure 9.37: Data report of the VMs in VDI environments

17. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report button** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link, which will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

- Before emailing reports, ensure that the **SMTP mail host** and **eG Administrator mail ID** are properly configured in the eG administrative interface (using the *Alerts -> Mail Settings -> Server Settings* option).
- When reports are sent by email, the body of the email will contain the reports so sent in HTML format. You can, if you so desire, send the report as an attachment by setting the **SendMailAsAttachment** flag to **Yes** (or **True**). This flag is available in the **[MISC_ARGS]** section of the **eg_services.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory).

9.7 Virtual Machines - VM Changes Report

Large virtualized environments often consist of too many VMs hosted on the virtual server. Apart from monitoring these VMs, monitoring the addition, migration and removal of VMs from the virtual server poses a major problem for the administrators. Using the **VM Changes** report, you can easily identify the VMs that are currently added to and removed from the virtual server. In addition to this, administrators can figure out those VMs that were migrated within the resource pools of the virtual server or outside the virtual server.

Essential Pre-requisites for generating the VM Changes report:

- In order to generate the **VM Changes** report, ensure that the **VM Movement** test is enabled. By default, this test is disabled. To enable the test, go to the **ENABLE / DISABLE TESTS** page in the eG admin interface using the menu sequence: *Agents -> Tests -> Enable/Disable*, pick the component-type for which these tests are to be enabled as the **Component type**, set *Performance* as the **Test type**, choose the tests from the **DISABLED TESTS** list, and click on the **>>** button to move the tests to the **ENABLED TESTS** list. Finally, click the **Update** button.
- Once the test is enabled, ensure that the test is up and running i.e., collecting the required metrics.

To generate the **VM Changes** report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Virtual Machines -> VM Changes*.
2. Figure 9.38 will then appear. By default, the **Report for** list will display **VMware vCenter** as its selection.

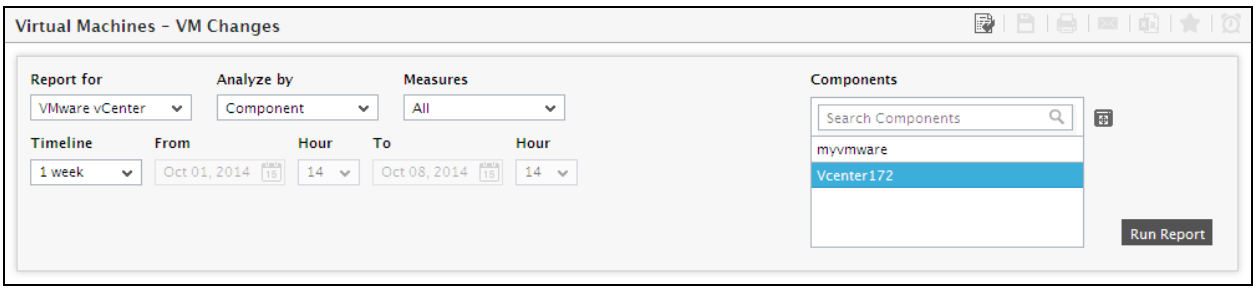


Figure 9.38: Selecting the criteria for the VM Changes report

3. Next, from the **Components** list, select the vCenter server(s) for which this report is to be generated. By default, all the managed vCenter servers in your environment will be listed here. This is because, the default selection from the **Analyze by** list is **Component**. You can however narrow your search by opting to view only those vCenter servers that are part of a service/segment/zone in the **VMware vCenter** list. For this, select the **Zone**, **Service**, or **Segment**, option from the **Analyze By** field:
   - Selecting the **Zone** option will allow you to select the desired zone from the **Zone** list box. To include the vCenter servers within a specific subzone also in the **VMware vCenter** list, set the **Include subzone** flag to **Yes**.
   - In the same way, to make the vCenter servers that are part of a particular segment or service available for selection in the **VMware vCenter** list, select **Service** or **Segment** from the **Analyze By** list box. Then, select the desired service or segment from the **Service** or **Segment** list.
4. If the **Components** list consists of too many vCenter servers, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the vCenter servers in a single interface and select the ones for which the report is to be generated.
5. Select an option from the **Measures** list for which the report is to be generated. By default, *All* option is chosen from this list indicating that this report will be generated for all the VMs that are added, removed and migrated from the chosen vCenter components.
6. Specify the report **Timeline**. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick an option from the **Components** list. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.39). The steps below discuss each of these settings and how they can be customized.

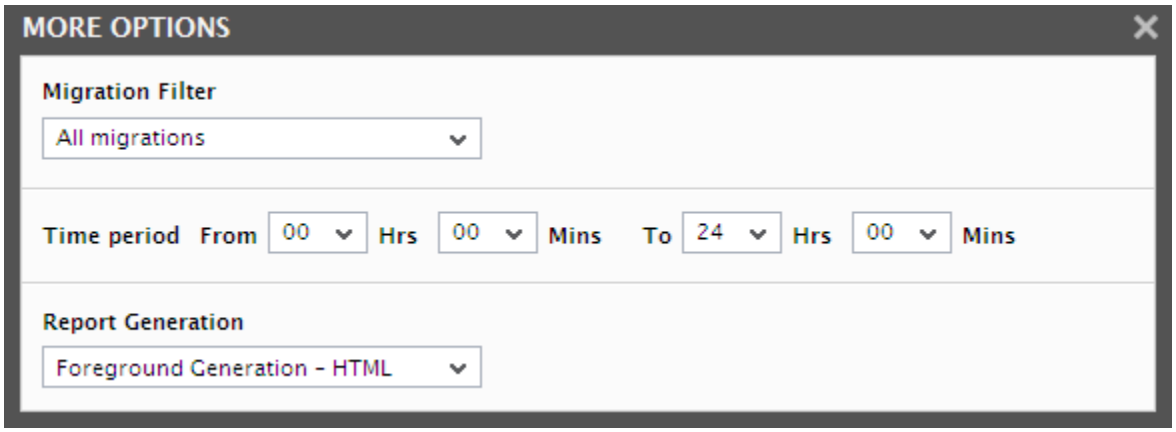

MORE OPTIONS
Migration Filter
All migrations
Time period From 00 Hrs 00 Mins To 24 Hrs 00 Mins
Report Generation
Foreground Generation - HTML

Figure 9.39: The default settings for generating the VM changes report

8. The **Migration Filter** list box will appear only when either the **All** or **Migrated VMs** option is chosen from the **Measures** list. By default, **All migrations** option is chosen from this list box. If you wish to generate the report for those VMs that have migrated across clusters alone, select the **Migrations across cluster** option from this list.
9. Next, specify the start time and end time for report generation against the **Time period** field.
10. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MEASURE_GROUP]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday**,**Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday**,**Saturday**.
- Save the file after making the required changes.

11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

12. Finally, click the **Run Report** button. Figure 9.40 will now appear.

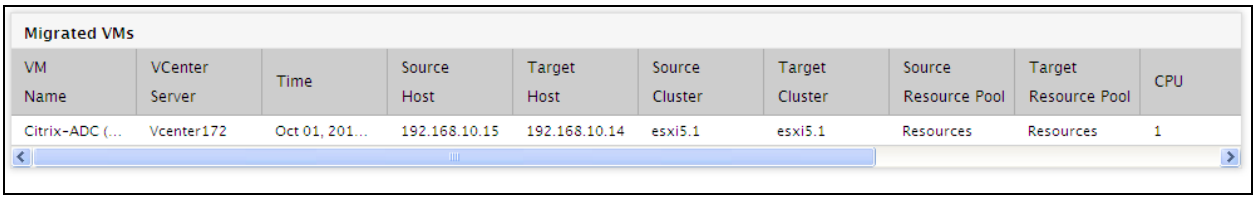


Figure 9.40: The VM Changes report

13. Figure 9.40 shows a tabular **VM changes** report for a chosen vCenter server. If **All** option is chosen from the **Measures** list and the **Foreground Generation –HTML** option is chosen from the **Report Generation** list, then the report consists of the following sections:

    - **Added VMs** – This section will list out all the VMs that are currently added to the vCenter server and the exact target i.e., the host/resource pool/cluster to which the VMs were added can be identified. In addition, the resource allocation to the VMs can also be identified using this report.
    - **Migrated VMs** – This section helps you to identify which are the VMs that are migrated from a source host/cluster/resource pool to the target host/cluster/resource pool.
    - **Removed VMs** – This section lists all the VMs that are removed from the vCenter server and the source from which the VMs have been removed i.e., the host/cluster/resource pool from which the VMs were removed can be identified.

    If **Added VMs** option is chosen from the **Measures** list and the **Foreground Generation –HTML** option is chosen from the **Report Generation** list, then the generated report will display only the **Added VMs** section. Likewise this report can be generated for the migrated VMs and the removed VMs by choosing the appropriate option from the **Measures** list.

9.8 The Virtual Machines – VM Distribution Report

In large virtualized farms, it is often difficult for administrators to know the VMs configured on the various virtual hosts and the current status of each VM. The use of VMotion/XenMotion technologies to migrate resource-intensive VMs to hosts that are well-sized, compounds the problem, as tracking the movement of VMs across hosts becomes a herculean task.

The **Virtual Machines – VM Distribution** report is ideal for such farms as it provides administrators with the following:

- a quick look at the VMs registered with a few/all virtual hosts in the environment;
- the powered-on status of the VMs;
- which VMs were VMotioned/XenMotioned to or from chosen virtual hosts in the environment during the configured timeline;

To generate the **Virtual Machines - VM Distribution** report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Virtual machines -> VM Distribution* in the eG Reporter interface.
2. Figure 9.41 then appears. First, indicate the type of report to be generated by selecting either **Graph** or **Data** as the **Report Type**. To generate a graphical report, select the **Graph** option. To select a data-based report, pick **Data** as the **Report Type**.

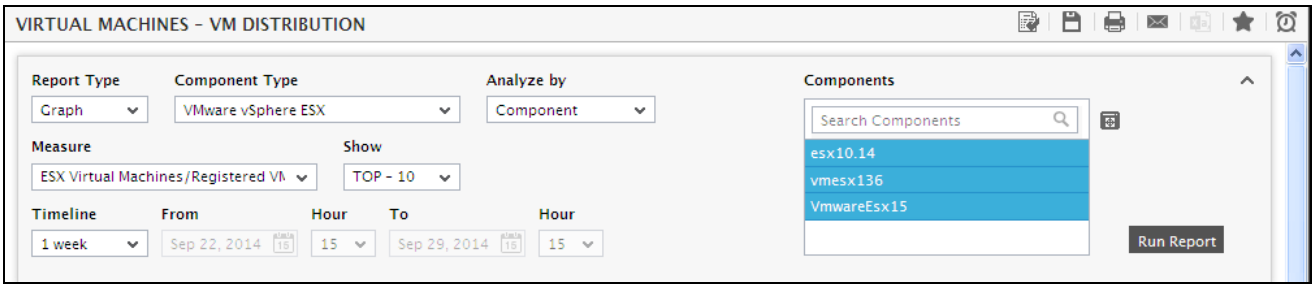


Figure 9.41: Selecting the criteria for the Virtual machines - VM Distribution report

3. Next, from the **Component Type** list, pick the virtualized component type for which the report is to be generated. By default, all managed virtualization platforms will be listed here.

4. Then, select a criterion for analysis from the **Analyze by** list box. Using this report, you can analyze the status of VMs that are configured on one/more independent virtualized components, or those that are configured on virtual hosts that are part of a segment, service, or a zone. The options provided by the **Analyze by** list box are discussed hereunder:

   - **Component**: Select this option to choose the component(s) from across all the managed virtualized components in the environment. For instance, for a report on the status of VMs on all the managed vSphere/ESX hosts in the environment, select *VMware vSphere ESX* from the the **Component Type** list, select **Component** from the **Analyze by** list, and then select all the virtual hosts listed in the **Components** list of Figure 9.41.
   - **Service**: Select this option if the components for which a report is to be generated are involved in the delivery of a business service. Then, select a **Service**.
   - **Segment**: Choose this option if the virtual hosts to be evaluated are part of a segment. Then, pick a **Segment** for analysis.
   - **Zone**: Pick this option for a report on the status of VMs on one/more virtual components that are included in a zone. Then, choose a **Zone**. Also, indicate whether the virtual hosts present within the sub-zones of the chosen zone are also to be to be considered for report generation, by selecting an option from the **Include subzones** list.

5. Based on the criterion chosen from the **Analyze by** list, the **Components** list will be populated. Select one/more of the listed components to generate a report. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.

6. If the **Report Type** is **Graph**, you will have to select the **Measure** for which the graphical report is to be generated. The **Measure** list is updated with pre-configured measures. By default, all measures indicating the status of VMs will be available in the **Measure** list.

7. The **Graph** report typically provides a pie chart that depicts the VM distribution across the chosen components, and a bar chart that indicates the number of VMs per chosen component. By selecting an option from the **Show** list, you can indicate the maximum number of components to be displayed in the bar chart.

The options available in the **Show** list are configurable. To do so, follow the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **NoOfServersforChart** parameter in the **[VIRTUAL_GUEST_STATUS]** section of the file. By default, the value displayed here is 10, indicating that, by default, the **Show** list will contain the *Top-5, Top-10, Last-5,*and *Last-10* options. If the report is to be generated for a total of 5 components only, then you might want to change the value of the **NoOfServersforChart** parameter to 5 instead. In such a case therefore, the **Show** list will contain the *Top-3, Top-5, Last-3,* and *Last-5* options only. This way, based on the number of **Component**s chosen for report generation, you can specify any value against the **NoOfServersforChart** parameter.
- Finally, save the **eg_report.ini** file.

Note

8. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

Note

9. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick an option from the **Show** list. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.42). The steps below discuss each of these settings and how they can be customized.

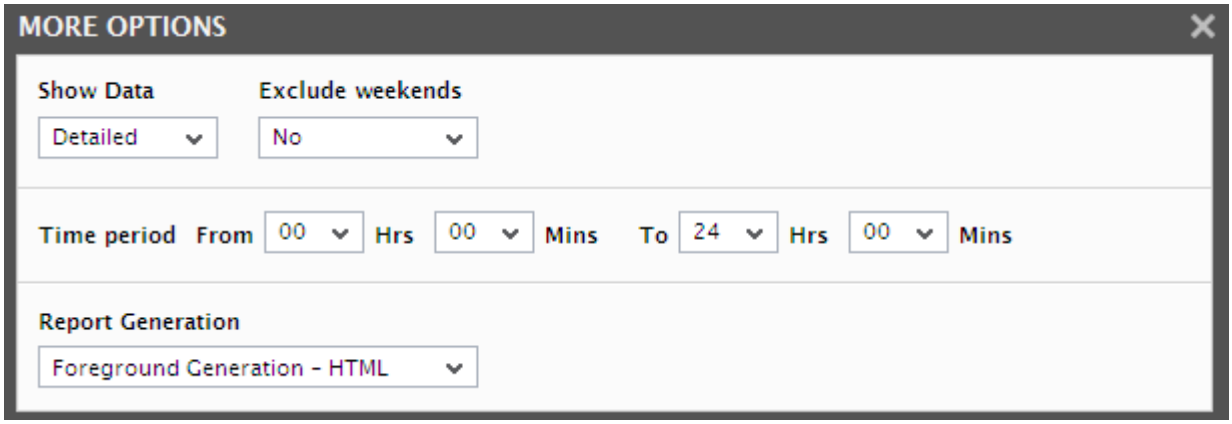


Figure 9.42: The default settings for generating the Virtual Machines – VM Distribution report

10. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.42. By default, the **Detailed** option is selected in Figure 9.42 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

    - Login to the eG administrative interface as 'admin'.
    - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
    - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_services.ini file**.
  - For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.7) informing you that only the **Trend** option is permitted.
  - To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

11. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_GUEST_STATUS]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

12. Next, indicate the report **Time period**.
13. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

14. Finally, click the **Run Report** button. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 9.43.

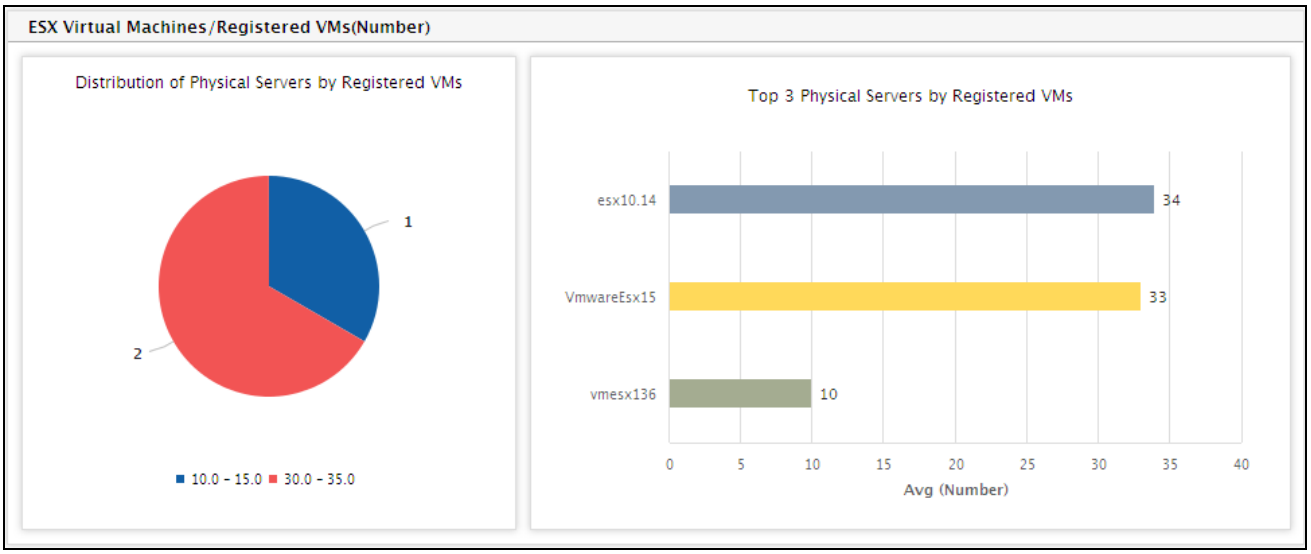


Figure 9.43: A graphical VM Distribution report

15. Figure 9.43 comprises of the following:

- A distribution pie chart that reveals the number of virtual hosts in different distribution ranges (see Figure 9.43). The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Registered VMs* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Registered VMs* - alone is calculated for every virtual host chosen from the **Component** list. The resulting pie chart enables administrators to deduce, at a glance, the number of virtual hosts with powered-on VMs. Clicking on a particular slice in the pie chart lists the virtual hosts that fall within the value range represented by that slice (see Figure 9.44). Against every virtual host, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A zone/component-type-level **Summary** of the chosen **Measure** will also be available.

VM DISTRIBUTION REPORT

Virtual Machines - VM Distribution

Start Date: Sep 22, 2014 15:05 hrs End Date: Sep 29, 2014 15:05 hrs

Summary for - Component

Registered VMs - Avg 25.67

Virtual Machines - VM Distribution for Component - VMware vSphere ESX

Range	Server	Registered VMs	
-	-	Avg	Max
30.0-35.0	VmwareEsx15	33	33
30.0-35.0	esx10.14	34	34

Figure 9.44: Details of the hosts that fall within the distribution range clicked on

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_GUEST_STATUS]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_GUEST_STATUS]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

- Adjacent to the pie chart, you will find a bar chart that indicates the virtual hosts that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Registered VMs* measure, this bar chart reveals the virtual hosts that have a large number of VMs powered on. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**. To zoom into the performance of a particular ESX server, click on its corresponding bar. Figure 9.45 then appears revealing how that ESX server has performed overall, during the specified **Timeline**.

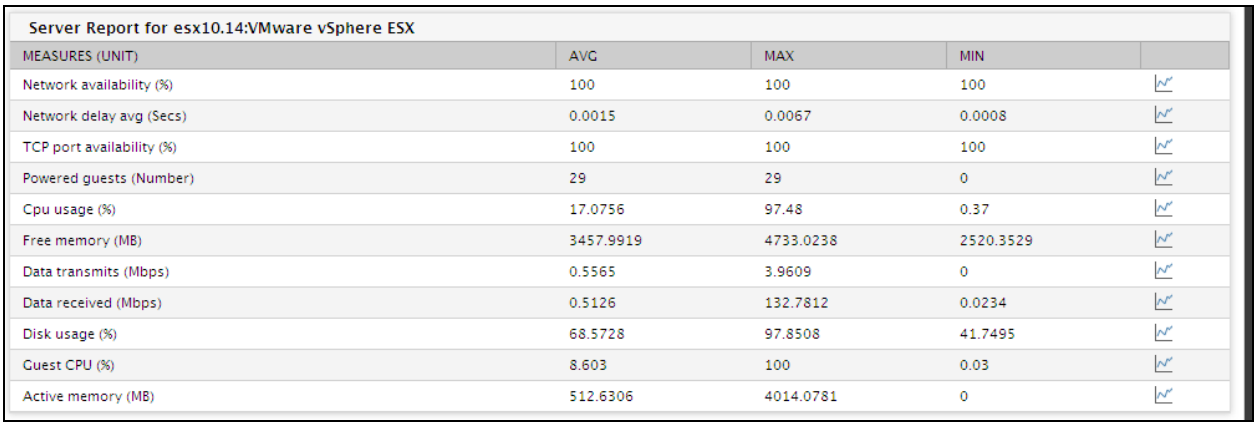
You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_GUEST_STATUS]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_GUEST]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **NoOfServersforChart** parameter in the **[VIRTUAL_GUEST_STATUS]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear. This is the same parameter that governs the options available in the **Show** list of Figure 9.41.
- Finally, save the **eg_report.ini** file.



Server Report for esx10.14:VMware vSphere ESX

MEASURES (UNIT)	AVG	MAX	MIN	
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0015	0.0067	0.0008	
TCP port availability (%)	100	100	100	
Powered guests (Number)	29	29	0	
Cpu usage (%)	17.0756	97.48	0.37	
Free memory (MB)	3457.9919	4733.0238	2520.3529	
Data transmits (Mbps)	0.5565	3.9609	0	
Data received (Mbps)	0.5126	132.7812	0.0234	
Disk usage (%)	68.5728	97.8508	41.7495	
Guest CPU (%)	8.603	100	0.03	
Active memory (MB)	512.6306	4014.0781	0	

Figure 9.45: A Server Report revealing the overall performance of the ESX server clicked on

16. Unlike a **Graph** report, a **Data** report does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report. If you select the **Data** option from **Report Type**, then you will not have to select a particular measure for the data report. Instead, you will have to select the column by which the resultant data report is to be sorted from the **Sort By** list. Also, pick **Foreground Generation - HTML** from the **Report Generation** list.

17. If you then click on the **Run Report** button, a report depicted by Figure 9.46 will appear.

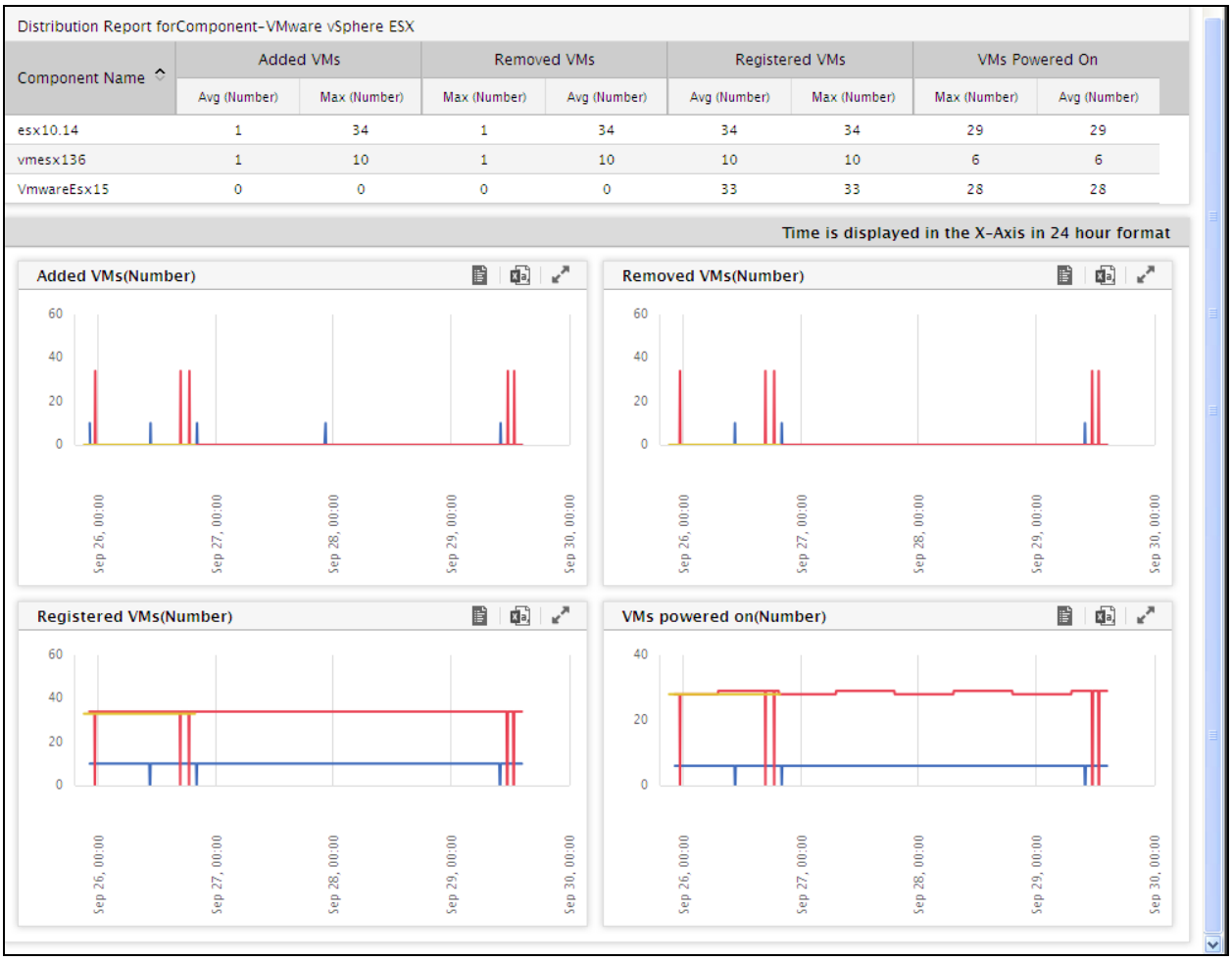


Figure 9.46: The VM Distribution Data report

18. For every component chosen from the **Components** list, the **Data report** displays the values computed by applying each of the configured functions on every measure configured for the report. This provides you with an overview of the status of VMs on every virtual host, over the given timeline. By clicking on the *Max* value of a measure, you can view the **DETAILED DIAGNOSIS** of that measure revealing the details of VMs that are in the corresponding state - for instance, clicking on the *Max* value of the **Removed Guests** measure in Figure 9.46 will reveal Figure 9.47 that lists the names of the VMs that were removed during the last measurement period.

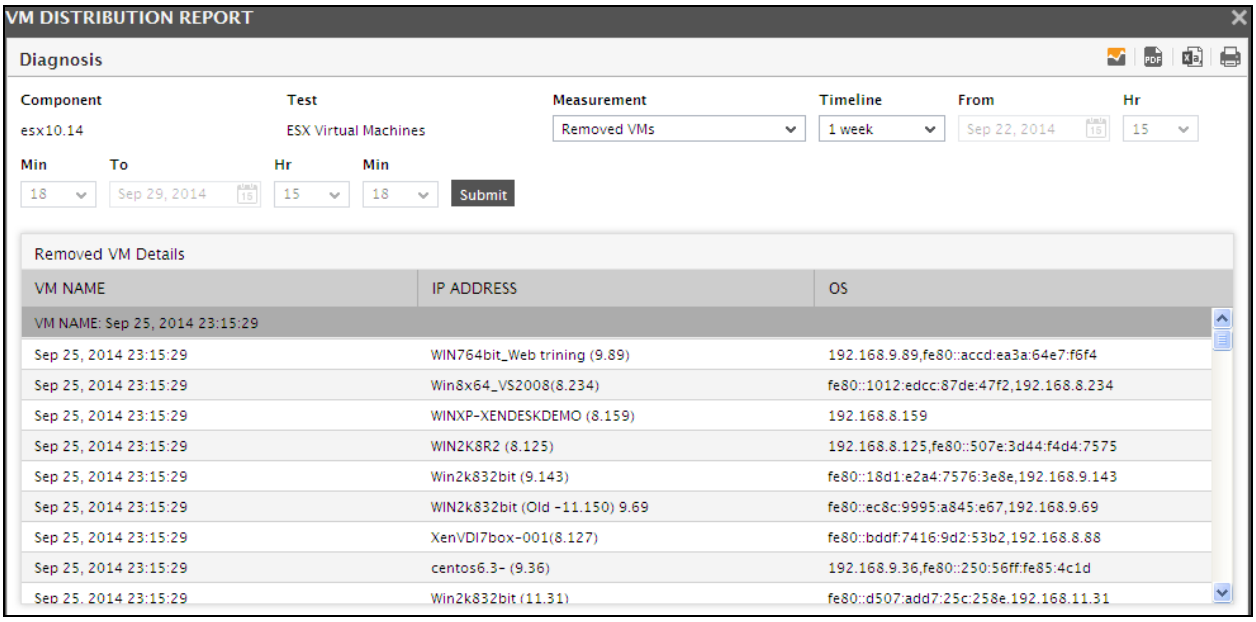


Figure 9.47: The detailed diagnosis of the Removed Guests measure

19. In addition, the report also provides time-of-day graphs for each of the configured measures, using which you can analyze the variations in VM status over time.

    You can configure the measures and functions for which the **VM Distribution** report is to be generated. To achieve this, follow the steps given below:

    - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
    - By default, the **[VIRTUAL_GUEST_STATUS]** section of the file includes entries of the following format for the measures and functions applicable to the **VM Distribution** report:

    <InternalTestName>#<InternalMeasureName>#<DisplayNameofMeasure>=<Comma-separated list of functions to be applied>

    Refer to the procedure discussed in the Page 212 of this manual to determine the internal name of a test/measure.

    - You can remove one/more of the measure confgurations that pre-exist by deleting or commenting the corresponding entries in the **[VIRTUAL_GUEST_STATUS]** section. In addition, you can even configure more measures and functions for the report, by simply appending/inserting a line in the above-mentioned format in the **[VIRTUAL_GUEST_STATUS]** section.

    For instance, to ensure that the report supports the *Added guests* measure returned by the *LDomsGuestsStatus* test, and applies both the average and max functions on the measure, your specification should be:

    LdomsStatusTest:Added_guests#Added guests=Avg,Max

    - Finally, save the file.

9.9 The Virtual Machines – VM Capacity Planning Report

In large virtualized farms with tons of VMs, identifying resource intensive VMs is a huge task for the administrators. It is also difficult to understand the reason behind the abnormal/excessive resource usage of the VMs – is it due to the resource hungry processes of the VMs or due to the poor resource allocation of the VMs?

The **Virtual Machines – VM Capacity Planning** report is ideal for such environments as it enables the administrators to figure out the following:

- At a single glance, you can analyze whether the VMs are impacting the physical resources of the host;
- Identify the hosts to which the resource intensive VMs can be migrated; and
- Check whether additional resources can be allocated to the VMs.

To generate the **Virtual Machines – Capacity Planning** report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Virtual Machines -> VM Capacity Planning* in the eG Reporter interface.
2. In Figure 9.48 that appears, select a criterion for analysis from the **Analyze by** list box. Using this report, you can analyze the capacity of the hosts and virtual machines hosted on independent virtual servers or those that are part of a segment, service, or a zone. The options provided by the **Analyze by** list box are discussed hereunder:
   - **Component**: Select this option to choose the component(s) from across all the managed virtualized components in the environment. For instance, for a report on the capacity of VMs on all the managed vSphere/ESX hosts in the environment, select *VMware vSphere ESX* from the **Component Type** list, select **Component** from the **Analyze by** list, and then select all the virtual hosts listed in the **Component** list of Figure 9.48. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
   - **Service**: Select this option to generate the report for all virtual servers that are involved in the delivery of a business service. Then, select a **Service**.
   - **Segment**: Choose this option if the virtual servers to be evaluated are configured on the virtual hosts that are part of a segment. Then, pick a **Segment** for analysis.
   - **Zone**: Pick this option for a report on the status of virtual servers managed on all virtual hosts that are included in a zone. Then, choose a **Zone**. Also, indicate whether the virtual servers present within the sub-zones of the chosen zone are also to be considered for report generation, by selecting an option from the **Include Subzone** list.

Figure 9.48: Selecting the criteria for the Virtual Capacity report

3. Next, from the **Component Type** list, pick the virtualized component-type for which the report is to be generated. By default, all managed virtualization platforms will be listed here.
4. Next, using the **Timeline** option, specify the period to which this report should pertain.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

5. Based on the criterion chosen from the **Analyze by** list, the **Component** list will be populated. Select one/more of the listed components to generate a report. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick an option from the **Component** list. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.49). The steps below discuss each of these settings and how they can be customized.

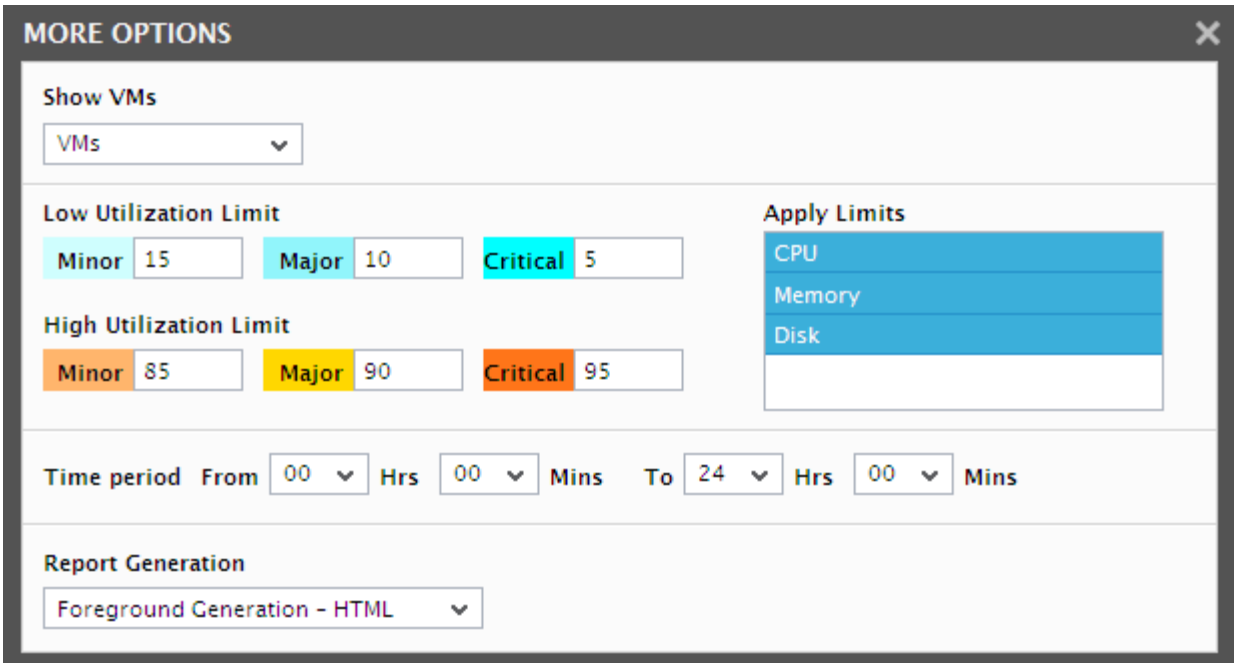


Figure 9.49: The default settings for generating the Virtual Machines – Capacity Planning report

7. Pick an option from the **Show VMs** list box to view the current capacity of the hosts and individual VMs that are hosted in the virtualized environment. By default, the **VMs** option will appear in this list box indicating that the capacity of the VMs in the virtual environment can be viewed at a single glance. In order to view the current capacity of the hosts, select the **Hosts** option from this list. Choose the **Hosts & VMs** option to clearly understand the current capacity of the hosts and the corresponding VMs at a single glance.

8. eG Enterprise System offers the flexibility of allowing the administrators to view the VMs/Hosts that consume high/low resources from the generated report at a single glance. This can be achieved by providing the lower/higher threshold limits of your choice i.e., providing the Minor/Major/Critical values in the appropriate **colored** text boxes against the **Low Utilization Limit** and **High Utilization Limit** options. Doing so, whenever the VMs/Hosts violate the specified threshold values, the current capacity of that particular VM/Host will be highlighted with the corresponding color of the specified text box in the generated report. This way, you can easily identify the VMs/Hosts that consume high/low resources in your environment. By default, the values specified against the Minor/Major/Critical text boxes of the **Low Utilization Limit** and **High Utilization Limit** options will be **5/10/15** and **85/90/95** respectively.

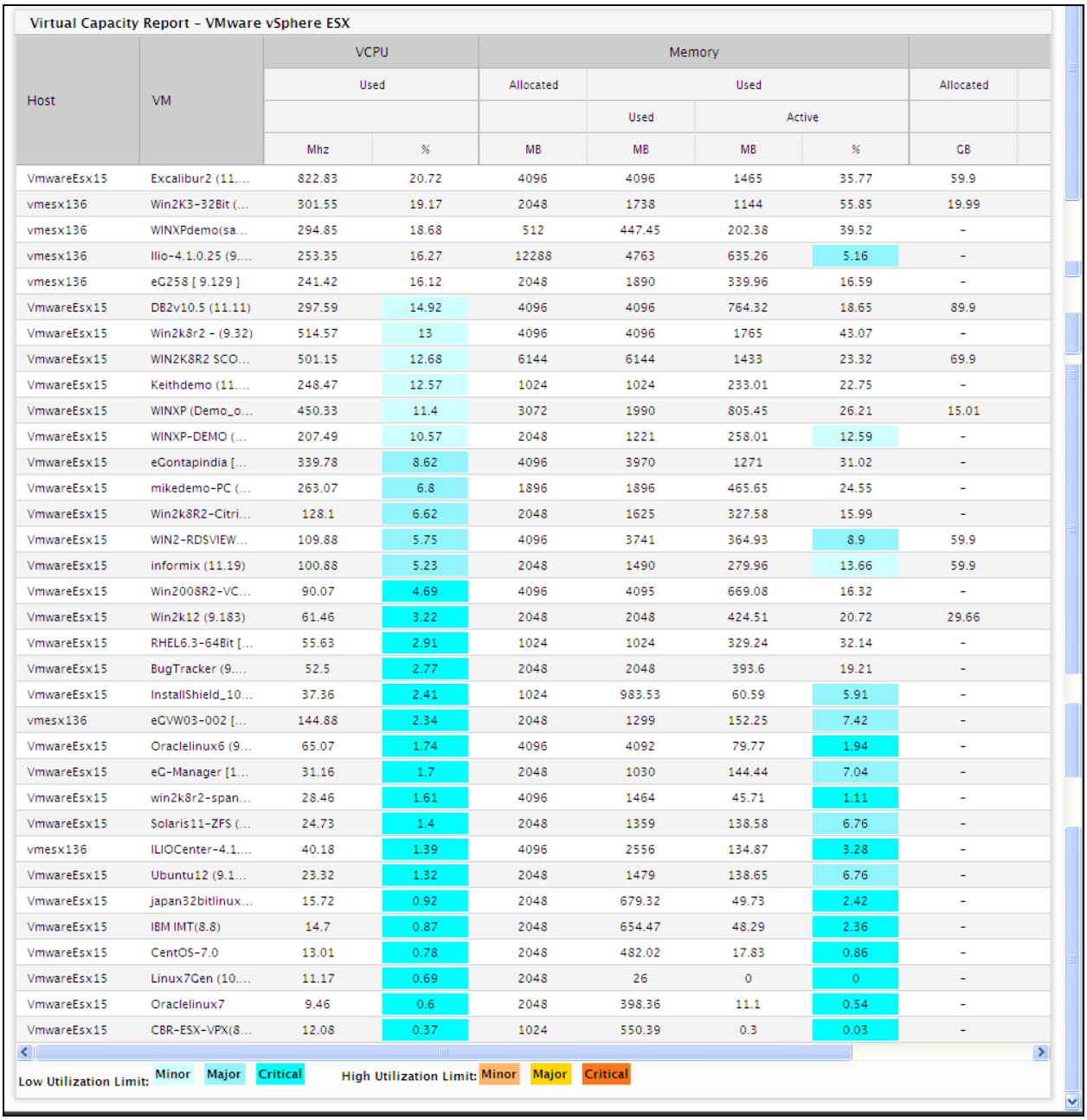
9. Choose an option from the **Apply Limits** list box so that the values that fall in the range mentioned in the **Low Utilization Limit** and **High Utilization Limit** options will be highlighted in the generated report. By default, all the three options (**CPU/Memory/Disk**) will be selected indicating that the administrators can view the resource intensive/resource hungry VMs/Hosts based on their CPU/Disk/Memory utilization.

10. Next, indicate the report **Time period**.

11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

12. Finally, click the **RUN REPORT** button. Figure 9.50 will appear.



Virtual Capacity Report - VMware vSphere ESX

Host	VM	VCPU		Memory				
		Used		Allocated	Used			Allocated
					Used	Active		
		Mhz	%	MB	MB	MB	%	GB
VmwareEsx15	Excalibur2 (11....	822.83	20.72	4096	4096	1465	35.77	59.9
vmesx136	Win2K3-32Bit (...	301.55	19.17	2048	1738	1144	55.85	19.99
vmesx136	WINXPdemo(sa...	294.85	18.68	512	447.45	202.38	39.52	-
vmesx136	Ilio-4.1.0.25 (9....	253.35	16.27	12288	4763	635.26	5.16	-
vmesx136	eG258 [9.129]	241.42	16.12	2048	1890	339.96	16.59	-
VmwareEsx15	DB2v10.5 (11.11)	297.59	14.92	4096	4096	764.32	18.65	89.9
VmwareEsx15	Win2k8r2 - (9.32)	514.57	13	4096	4096	1765	43.07	-
VmwareEsx15	WIN2K8R2 SCO...	501.15	12.68	6144	6144	1433	23.32	69.9
VmwareEsx15	Keithdemo (11....	248.47	12.57	1024	1024	233.01	22.75	-
VmwareEsx15	WINXP (Demo_o...	450.33	11.4	3072	1990	805.45	26.21	15.01
VmwareEsx15	WINXP-DEMO (...	207.49	10.57	2048	1221	258.01	12.59	-
VmwareEsx15	eGontapindia [...	339.78	8.62	4096	3970	1271	31.02	-
VmwareEsx15	mikedemo-PC (...	263.07	6.8	1896	1896	465.65	24.55	-
VmwareEsx15	Win2k8R2-Citri...	128.1	6.62	2048	1625	327.58	15.99	-
VmwareEsx15	WIN2-RDSVIEW...	109.88	5.75	4096	3741	364.93	8.9	59.9
VmwareEsx15	informix (11.19)	100.88	5.23	2048	1490	279.96	13.66	59.9
VmwareEsx15	Win2008R2-VC...	90.07	4.69	4096	4095	669.08	16.32	-
VmwareEsx15	Win2k12 (9.183)	61.46	3.22	2048	2048	424.51	20.72	29.66
VmwareEsx15	RHEL6.3-64Bit [...	55.63	2.91	1024	1024	329.24	32.14	-
VmwareEsx15	BugTracker (9....	52.5	2.77	2048	2048	393.6	19.21	-
VmwareEsx15	InstallShield_10...	37.36	2.41	1024	983.53	60.59	5.91	-
vmesx136	eGVW03-002 [...	144.88	2.34	2048	1299	152.25	7.42	-
VmwareEsx15	Oraclelinux6 (9...	65.07	1.74	4096	4092	79.77	1.94	-
VmwareEsx15	eG-Manager [1...	31.16	1.7	2048	1030	144.44	7.04	-
VmwareEsx15	win2k8r2-span...	28.46	1.61	4096	1464	45.71	1.11	-
VmwareEsx15	Solaris11-ZFS (...	24.73	1.4	2048	1359	138.58	6.76	-
vmesx136	ILIOCenter-4.1....	40.18	1.39	4096	2556	134.87	3.28	-
VmwareEsx15	Ubuntu12 (9.1...	23.32	1.32	2048	1479	138.65	6.76	-
VmwareEsx15	japan32bitlinux...	15.72	0.92	2048	679.32	49.73	2.42	-
VmwareEsx15	IBM IMT(8.8)	14.7	0.87	2048	654.47	48.29	2.36	-
VmwareEsx15	CentOS-7.0	13.01	0.78	2048	482.02	17.83	0.86	-
VmwareEsx15	Linux7Gen (10....	11.17	0.69	2048	26	0	0	-
VmwareEsx15	Oraclelinux7	9.46	0.6	2048	398.36	11.1	0.54	-
VmwareEsx15	CBR-ESX-VPX(8...	12.08	0.37	1024	550.39	0.3	0.03	-

Low Utilization Limit: Minor Major Critical High Utilization Limit: Minor Major Critical

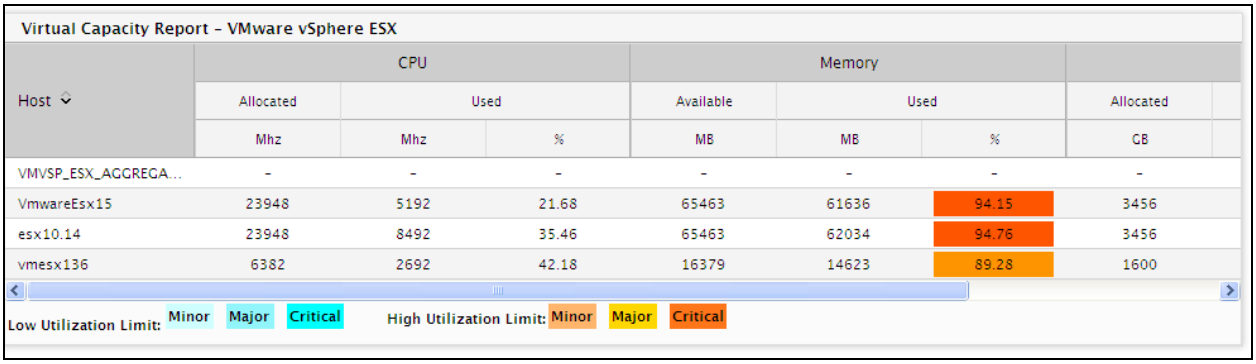
Figure 9.50: The Virtual Machines - Capacity Planning Report

13. Figure 9.50 shows the Virtual Machines - Capacity Planning Report that is generated when the **VMs** option is chosen from the **Show VMs** list box. Using this report, you can easily figure out the actual resource usage of the VMS and identify which VMs are actually resource-intensive. The generated report will list the CPU, Memory and disk usage of the host. From the generated report, you can easily identify the following:

    - The allocated virtual CPU and the CPU that is currently utilized by the VMs. The actual value in Megahertz and the percentage of CPU utilized will be indicated in separate columns. (see Figure 9.50).
    - The actual memory allocated to the VM and the memory that is currently utilized by the VM. The memory that is currently in use by the VM and the percentage of memory utilized will be represented in separate columns.

- In addition you can view the virtual disk space that is currently allocated to each VM, the actual disk space that is utilized (in GB) and the percentage of disk space utilization.

14. If you have selected the **Hosts** option from the **Show VMs** list box, then the report (see Figure 9.51) will be generated for all the virtual hosts of the target environment. The generated report will comprise the memory, CPU and the disk utilization of the hosts in detail as elaborated in step 15. By default, the **Hosts** column will be sorted in ascending order. If you wish to sort the hosts in the descending order, then click on the **down** arrow adjacent to the **Host** in the generated report. Likewise, you can sort the report based on any column. To do so, just click on the measurement units displayed in each column of the report. The column will now be sorted in descending order.



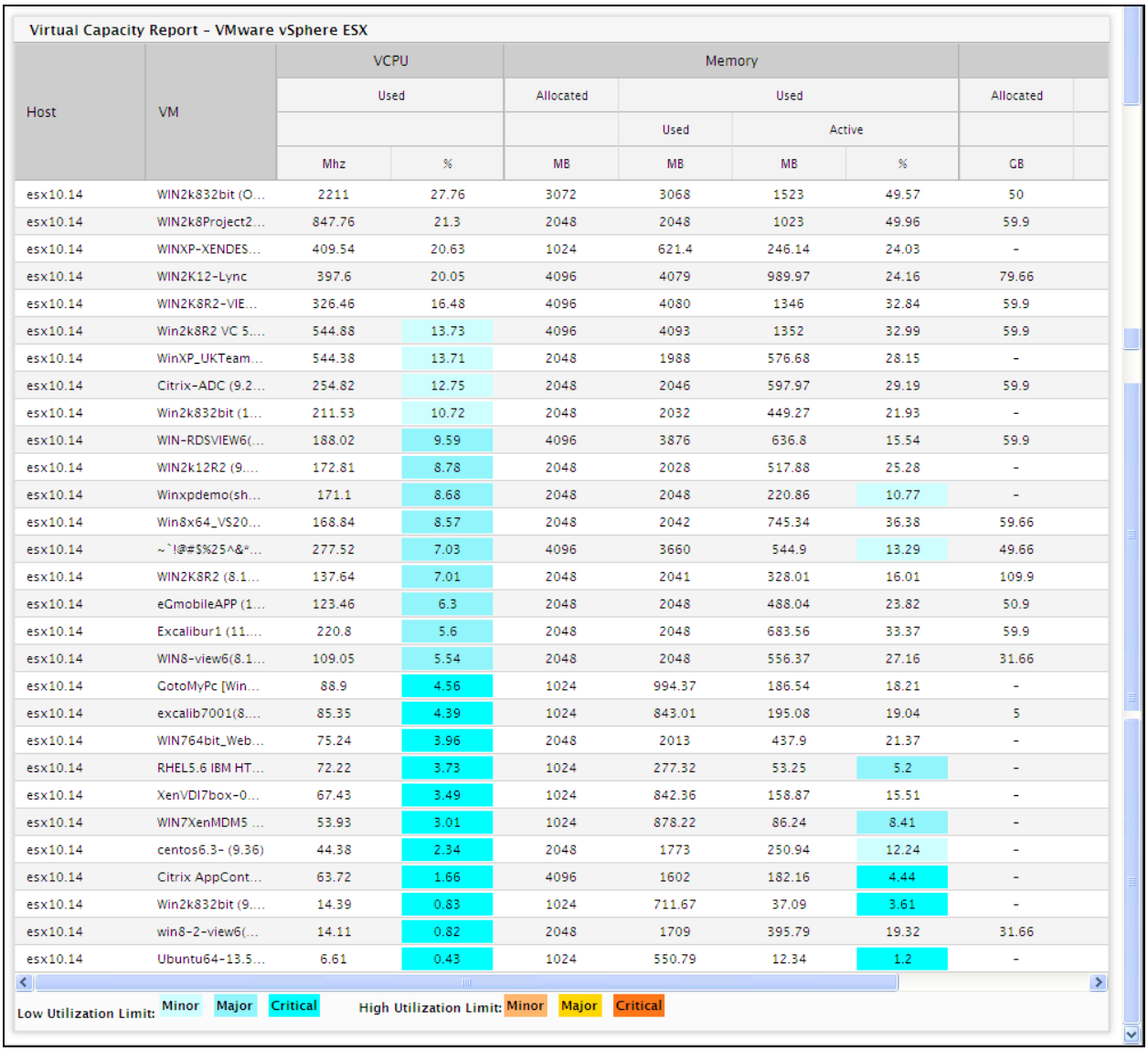
Virtual Capacity Report – VMware vSphere ESX

Host	CPU			Memory			
	Allocated	Used		Available	Used		Allocated
	Mhz	Mhz	%	MB	MB	%	GB
VMVSP_ESX_AGGREGA...	-	-	-	-	-	-	-
VmwareEsx15	23948	5192	21.68	65463	61636	94.15	3456
esx10.14	23948	8492	35.46	65463	62034	94.76	3456
vmesx136	6382	2692	42.18	16379	14623	89.28	1600

Low Utilization Limit: Minor Major Critical High Utilization Limit: Minor Major Critical

Figure 9.51: The Virtual Machines - Capacity Planning report when the *Hosts* option is selected

15. If the **Hosts & VMs** option is chosen from the **Show VMs** list box, then the report will be generated as in Figure 9.52. The generated report will be a combination of the report that is generated when the **Hosts** and the **VMs** option are selected individually. In this report, you will be able to view the capacity of each individual host and the VMs that are hosted through that host. 0.



Virtual Capacity Report - VMware vSphere ESX

Host	VM	VCPU		Memory				
		Used		Allocated	Used			Allocated
					Used	Active		
		Mhz	%	MB	MB	MB	%	GB
esx10.14	WIN2k832bit (O...	2211	27.76	3072	3068	1523	49.57	50
esx10.14	WIN2k8Project2...	847.76	21.3	2048	2048	1023	49.96	59.9
esx10.14	WINXP-XENDES...	409.54	20.63	1024	621.4	246.14	24.03	-
esx10.14	WIN2K12-Lync	397.6	20.05	4096	4079	989.97	24.16	79.66
esx10.14	WIN2K8R2-VIE...	326.46	16.48	4096	4080	1346	32.84	59.9
esx10.14	Win2k8R2 VC 5....	544.88	13.73	4096	4093	1352	32.99	59.9
esx10.14	WinXP_UKTeam...	544.38	13.71	2048	1988	576.68	28.15	-
esx10.14	Citrix-ADC (9.2...	254.82	12.75	2048	2046	597.97	29.19	59.9
esx10.14	Win2k832bit (1...	211.53	10.72	2048	2032	449.27	21.93	-
esx10.14	WIN-RDSVIEW6(...	188.02	9.59	4096	3876	636.8	15.54	59.9
esx10.14	WIN2k12R2 (9....	172.81	8.78	2048	2028	517.88	25.28	-
esx10.14	Winxpdemo(sh...	171.1	8.68	2048	2048	220.86	10.77	-
esx10.14	Win8x64_VS20...	168.84	8.57	2048	2042	745.34	36.38	59.66
esx10.14	~`!@#$%25^&*...	277.52	7.03	4096	3660	544.9	13.29	49.66
esx10.14	WIN2K8R2 (8.1...	137.64	7.01	2048	2041	328.01	16.01	109.9
esx10.14	eGmobileAPP (1...	123.46	6.3	2048	2048	488.04	23.82	50.9
esx10.14	Excalibur1 (11....	220.8	5.6	2048	2048	683.56	33.37	59.9
esx10.14	WIN8-view6(8.1...	109.05	5.54	2048	2048	556.37	27.16	31.66
esx10.14	GotoMyPc [Win...	88.9	4.56	1024	994.37	186.54	18.21	-
esx10.14	excalib7001(8....	85.35	4.39	1024	843.01	195.08	19.04	5
esx10.14	WIN764bit_Web...	75.24	3.96	2048	2013	437.9	21.37	-
esx10.14	RHEL5.6 IBM HT...	72.22	3.73	1024	277.32	53.25	5.2	-
esx10.14	XenVDI7box-0...	67.43	3.49	1024	842.36	158.87	15.51	-
esx10.14	WIN7XenMDM5 ...	53.93	3.01	1024	878.22	86.24	8.41	-
esx10.14	centos6.3- (9.36)	44.38	2.34	2048	1773	250.94	12.24	-
esx10.14	Citrix AppCont...	63.72	1.66	4096	1602	182.16	4.44	-
esx10.14	Win2k832bit (9....	14.39	0.83	1024	711.67	37.09	3.61	-
esx10.14	win8-2-view6(...	14.11	0.82	2048	1709	395.79	19.32	31.66
esx10.14	Ubuntu64-13.5...	6.61	0.43	1024	550.79	12.34	1.2	-

Low Utilization Limit: Minor Major Critical High Utilization Limit: Minor Major Critical

Figure 9.52: The Virtual machines - Capacity Planning report when the *Hosts and VMs* option is selected

9.10 The User VMs Report

Like components, segments, zones, and services, virtual machines can also be assigned to specific users. This feature is particularly useful for cloud service providers, who often need to provision a VM on-demand for any customer who requests for it. These cloud consumers (i.e., customers) are only concerned with the availability and internal health of those VMs that the service provider has provisioned for them, as typically, they will have no knowledge of the virtual servers on which the VMs operate. This means that these customers may not require monitoring access to the whole virtual server as such. By configuring user-VM mappings using the eG administrative interface, the cloud service providers will not only be able to track who is using which VM, but will also be able to provide a customer with the ability to view in real-time the status, overall performance, and problems related to only the VMs (and not the virtual servers) that were specifically launched on the cloud for him/her. To know how to associate VMs to users, refer to the *eG User Manual*.

If a user who has been assigned VMs logs into the eG Reporter console, then a special **User VMs** report option will

appear under the **Virtualization** menu of eG Reporter (see Figure 9.53).

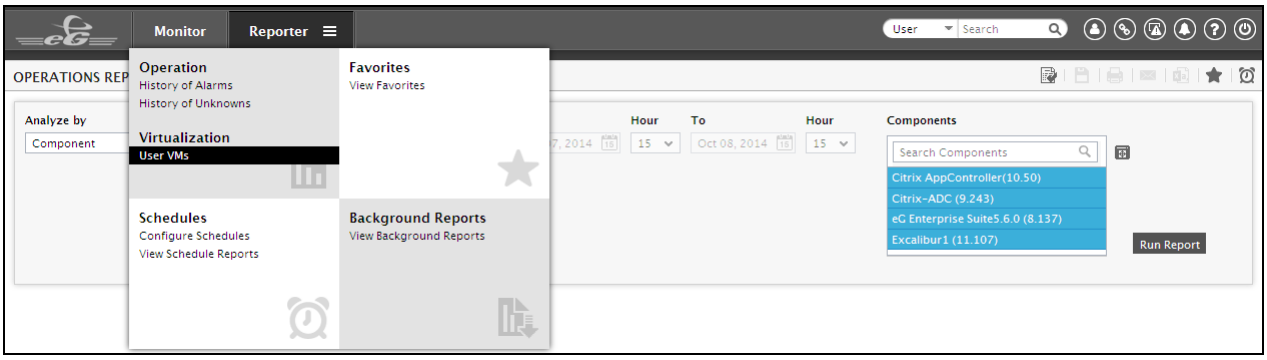


Figure 9.53: Navigating to the User VMs report from the eG Reporter interface

If the current user to the eG Reporter console has the right to monitor only VMs and not any other infrastructure element, then, for such a user, only the **Operations**, **Virtualization**, and **Options** menus will be available in eG Reporter. Also, the **Virtualization** menu in this case will include only the **User VMs** option.

With the help of the **User VMs** report, the user can zoom into one of the VMs assigned to him/her and analyze how well that VM is using the resources allocated to it. Sporadic/consistent spikes in resource usage and root-cause for such abnormal usage patterns can thus be deduced.

To generate the **User VMs** report, do the following:

1. Upon selecting the **User VMs** option from Figure 9.53, Figure 9.54 will appear. The **Virtual Machine** list in Figure 9.54 will list all the VMs that have been explicitly assigned to the user who has logged in. Select a VM from this list.

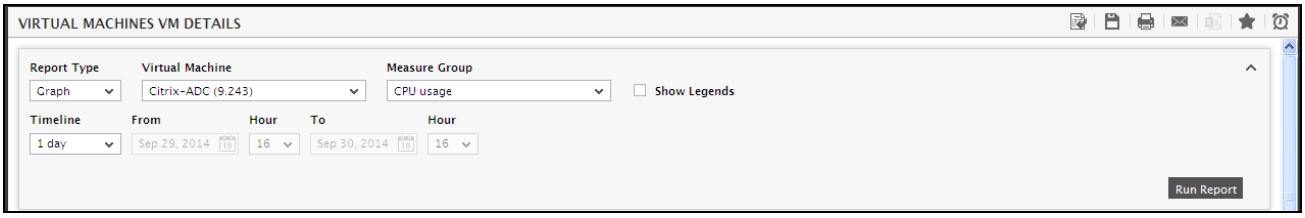


Figure 9.54: Generating the User VMs report

2. Next, select **Graph** from the **Report Type** field to generate a graphical report. For a data report, select the **Data** option.
3. eG Enterprise collects a wide range of virtual resource usage metrics - i.e., 'inside view' metrics - from a VM. Using the **User VMs** report, you can focus on how a chosen VM utilizes a specific resource - say CPU, memory, disk space, etc. For this purpose, by default, eG Enterprise groups the virtual resource usage metrics of a VM into six different 'resource groups', based on the 'resource type'. These groups are, namely: *Memory usage*, *CPU usage*, *Disk usage*, *Network usage*, *TCP Connection*, and *Uptime Status*. For instance, all key metrics related to memory usage – e.g., allocated memory size, Memory max limited, Target memory, etc. - are by

default included in the *Memory usage* group. Also, to provide administrators with a clearer view of a VM's resource usage, eG Enterprise, by default, computes the *Avg* and *Max* values of every metric in a group, and displays these values in the report. To know how the chosen VM has used a particular resource across the selected **Components**, pick one of the above-mentioned resource groups from the **Measure Group** list. On the other hand, if you want to generate a report that brings out the overall resource usage of a VM across the chosen **Components**, then select **All** from the **Measure Group** list.

The default resource groups *Memory usage*, *CPU usage* , *Disk usage* , *Network usage*, *TcpIp usage* , and *Time in usage* - are hard-coded in the eG Enterprise system. The names of these groups cannot be changed, and no new resource groups can be introduced. However, if need be, additional metrics can be included in the default groups, and additional functions can be applied to any of grouped metrics. For instance to add the *Run queue in VM* metric to the *CPU usage* group, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_MEASURE_GROUP]** section of the file, insert a line for the new metric, in the following format:

Cpu_usage:<InternalTestName>:<InternalMeasureName>=<Comma-separated list of functions>

For the *Run queue in VM* measure therefore, your specification should be:

Cpu_usage:VmgSystemTest:Run_ueue_length=Avg,Max

To know the *<InternalTestName>* and *<InternalMeasureName>*, refer to the procedure discussed in Page 212 of this document.

- Finally, save the file.

Similarly, new metrics/functions can be added to the *Memory_usage*, *Disk_usage*, *Network_usage*, *Timein_usage* , *TcpIp_usage* groups.

---

4. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick an option from the **Component** list. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.55). The steps below discuss each of these settings and how they can be customized.

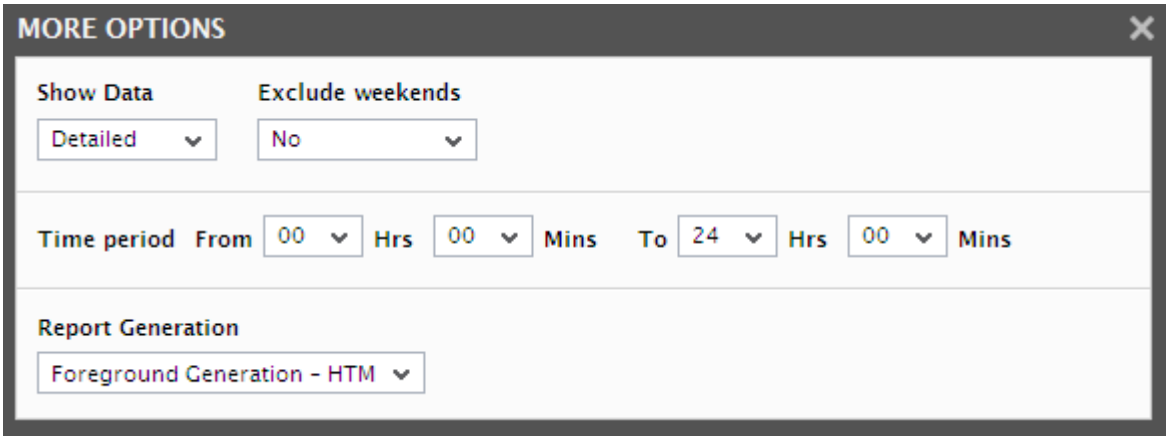


Figure 9.55: The default settings for generating the User VMs report

5. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.55. By default, the **Detailed** option is selected in Figure 9.55 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

   - Login to the eG administrative interface as 'admin'.
   - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
   - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.7) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

6. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_MEASURE_GROUP]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

7. Next, indicate the report **Timeperiod**.
8. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

9. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

10. Finally, click the **RUN REPORT** button. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then clicking on the **RUN REPORT BUTTON** invokes Figure 9.56. The **Graph** report applies the first of the configured functions (i.e., *Avg* by default) on every metric in the chosen group, and generates time-of-day graphs revealing the variations in the computed values in the chosen VM during the specified period. These graphs help determine whether applications executing on the VM are consuming the resources allocated to the VM excessively, or whether the VMs are inadequately sized.

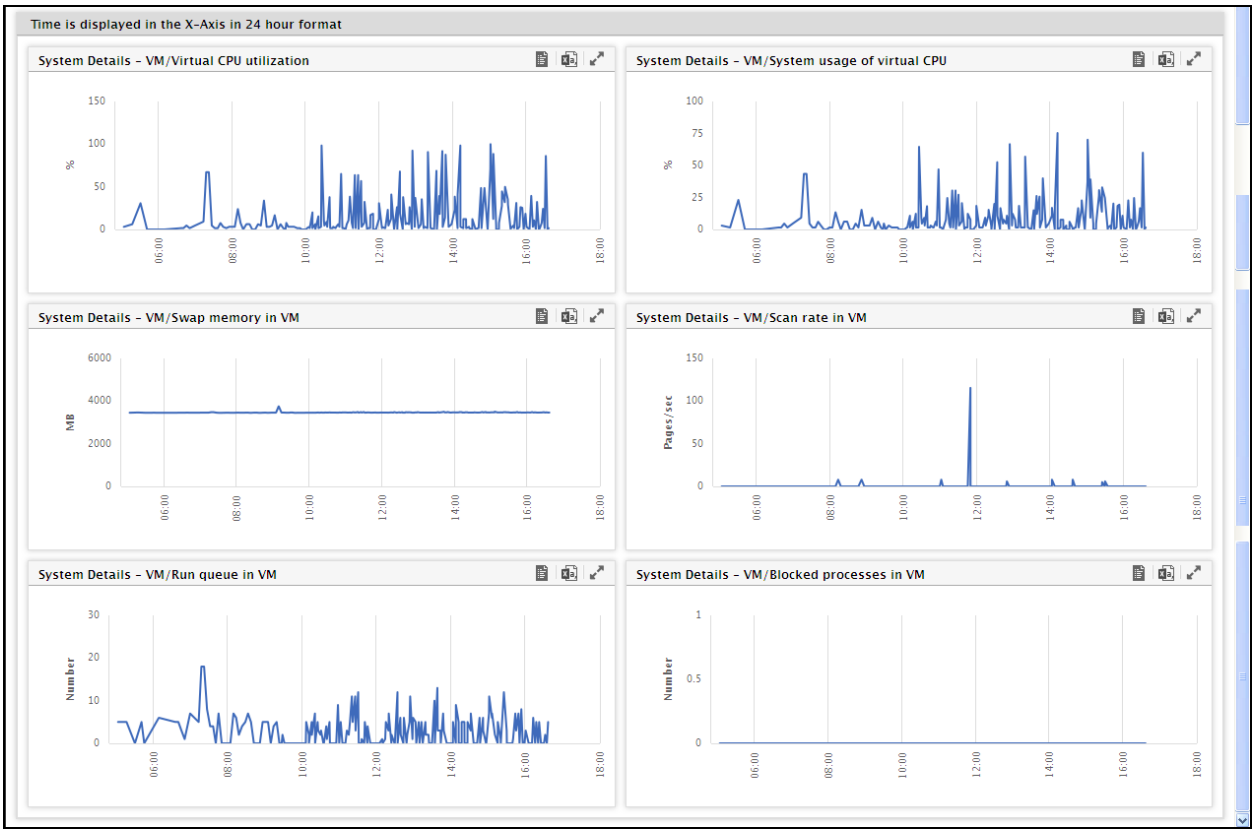

Time is displayed in the X-Axis in 24 hour format
System Details - VM/Virtual CPU utilization
System Details - VM/System usage of virtual CPU
System Details - VM/Swap memory in VM
System Details - VM/Scan rate in VM
System Details - VM/Run queue in VM
System Details - VM/Blocked processes in VM

Figure 9.56: A graphical User VMs report

11. Each graph in Figure 9.56 comes with a and a icons. You can view the data plotted in a graph by clicking the icon and can save the data in a CSV file by clicking on the icon.

12. If the **Report Type** were **Data**, then you would not be required to choose a **Measure Group**. The **Data** report applies all the configured functions (i.e., both *Avg* and *Max* by default) on every metric in every measure group, and displays all the computed values in a tabular format, once the **Run Report** button is clicked (see Figure 9.57). Under the individual measure groups, details of the resource usage of the chosen VM will be available.

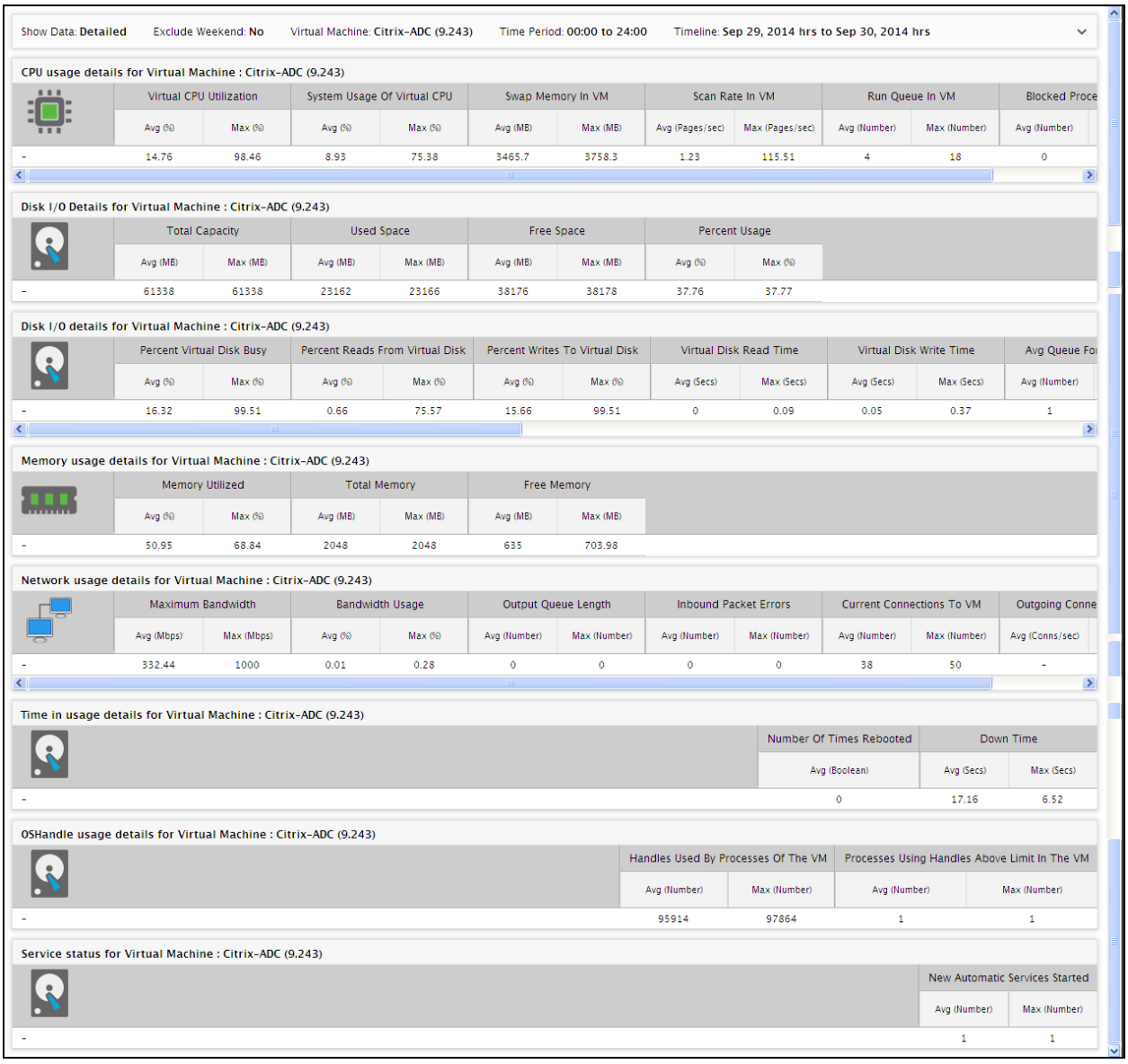

Show Data: Detailed
Exclude Weekend: No
Virtual Machine: Citrix-ADC (9.243)
Time Period: 00:00 to 24:00
Timeline: Sep 29, 2014 hrs to Sep 30, 2014 hrs
CPU usage details for Virtual Machine : Citrix-ADC (9.243)
Virtual CPU Utilization
System Usage Of Virtual CPU
Swap Memory In VM
Scan Rate In VM
Run Queue In VM
Blocked Proce
Avg (%) Max (%) Avg (%) Max (%) Avg (MB) Max (MB) Avg (Pages/sec) Max (Pages/sec) Avg (Number) Max (Number) Avg (Number)
- 14.76 98.46 8.93 75.38 3465.7 3758.3 1.23 115.51 4 18 0
Disk I/O Details for Virtual Machine : Citrix-ADC (9.243)
Total Capacity
Used Space
Free Space
Percent Usage
Avg (MB) Max (MB) Avg (MB) Max (MB) Avg (MB) Max (MB) Avg (%) Max (%)
- 61338 61338 23162 23166 38176 38178 37.76 37.77
Disk I/O details for Virtual Machine : Citrix-ADC (9.243)
Percent Virtual Disk Busy
Percent Reads From Virtual Disk
Percent Writes To Virtual Disk
Virtual Disk Read Time
Virtual Disk Write Time
Avg Queue Fo
Avg (%) Max (%) Avg (%) Max (%) Avg (%) Max (%) Avg (Secs) Max (Secs) Avg (Secs) Max (Secs) Avg (Number)
- 16.32 99.51 0.66 75.57 15.66 99.51 0 0.09 0.05 0.37 1
Memory usage details for Virtual Machine : Citrix-ADC (9.243)
Memory Utilized
Total Memory
Free Memory
Avg (%) Max (%) Avg (MB) Max (MB) Avg (MB) Max (MB)
- 50.95 68.84 2048 2048 635 703.98
Network usage details for Virtual Machine : Citrix-ADC (9.243)
Maximum Bandwidth
Bandwidth Usage
Output Queue Length
Inbound Packet Errors
Current Connections To VM
Outgoing Conne
Avg (Mbps) Max (Mbps) Avg (%) Max (%) Avg (Number) Max (Number) Avg (Number) Max (Number) Avg (Number) Max (Number) Avg (Conns/sec)
- 332.44 1000 0.01 0.28 0 0 0 0 38 50 -
Time in usage details for Virtual Machine : Citrix-ADC (9.243)
Number Of Times Rebooted
Down Time
Avg (Boolean) Avg (Secs) Max (Secs)
- 0 17.16 6.52
OSHandle usage details for Virtual Machine : Citrix-ADC (9.243)
Handles Used By Processes Of The VM
Processes Using Handles Above Limit In The VM
Avg (Number) Max (Number) Avg (Number) Max (Number)
- 95914 97864 1 1
Service status for Virtual Machine : Citrix-ADC (9.243)
New Automatic Services Started
Avg (Number) Max (Number)
- 1 1

Figure 9.57: The User VMs Data Report

13. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the PDF icon in that page.

9.11 Virtual Machines - Right Sizing Report

In large virtualized environments where the role of each individual VM plays a major role, it is essential to provision the VMs with appropriate sizing. This way, you can maintain the load on the VM. Using this report, you can - identify

the VMs that are highly in need of CPU resources and those that are possessing CPU resources that are utilized in sparse; and helps you in resizing the VMs according to the vCPU utilization.

To generate the **Virtual Machines - Right Sizing** report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Virtual Machines -> VM Right Sizing* in the eG Reporter interface.
2. Figure 9.58 will then appear. Pick a criterion for analysis from the **Analyze by** list. Using this report, you can analyze the size of the VMs available in the servers that are part of a segment, service, or a zone. The options provided by the **Analyze by** list box are discussed hereunder:
   - **Component**: Select this option to choose the component(s) from across all the managed components in the environment.
   - **Service**: Select this option if the components for which a report is to be generated are involved in the delivery of a business service. Then, select a **Service**.
   - **Segment**: Choose this option if the components for which this report is to be generated are part of a segment. Then, pick a **Segment** for analysis.
   - **Zone**: Pick this option if the components chosen are part of a zone. Then, choose a **Zone**. Also, indicate whether the components within the sub-zones of the chosen zone are also to be considered for report generation, by selecting an option from the **Include Subzone** list.

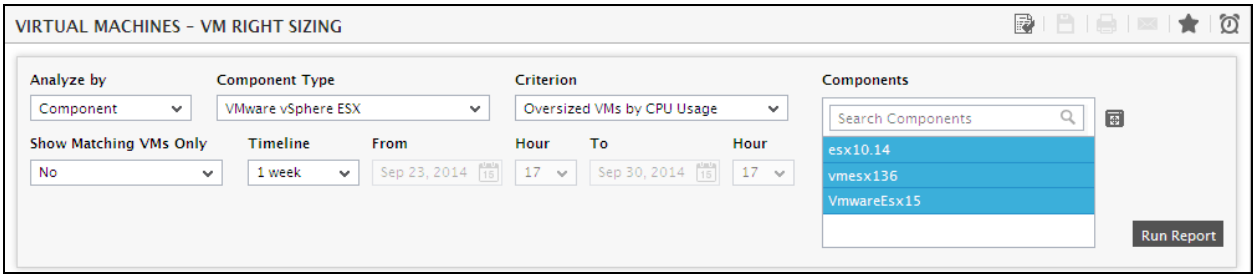


Figure 9.58: Selecting the criteria for the VM Right Sizing report

3. Select the **Component Type** for which you wish to analyze the sizing of the VMs.
4. The **Components** list will then be populated with the servers that match the **Analyze By** criteria specified earlier. From this list, select the components for which the report is to be generated. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
5. Pick an option from the **Criterion** list box using which you could generate a report based on the size (oversize/undersize) of the VMs. By default, the **Oversized VMs by CPU Usage** option is selected from this list. If the **Undersized VMs by CPU Usage** option is chosen from this list, then the report will be generated for all the VMs that are undersized i.e., the VM performs most of the operations with lesser number of vCPUs.
6. If you wish to view only the oversized/undersized VMs for the chosen server in the target environment, set the **Show Matching VMs Only** flag to **Yes**. By default, this flag is set to **No**.
7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **RUN REPORT BUTTON** soon after you pick a **Component**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the

MORE OPTIONS drop down window (see Figure 9.59). The steps below discuss each of these settings and how they can be customized.

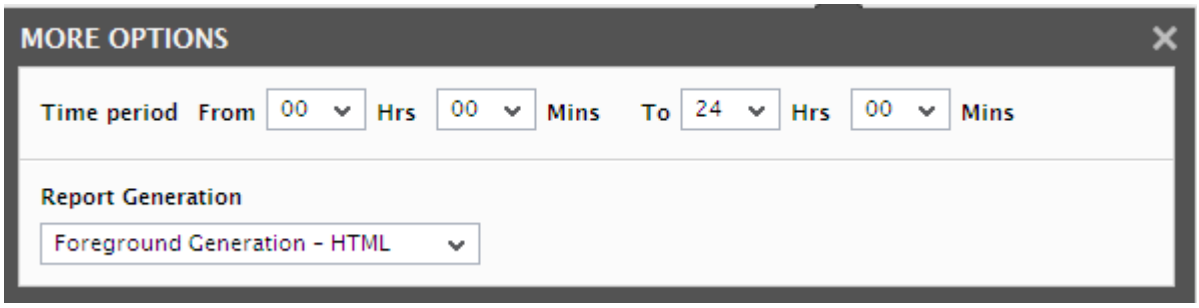


Figure 9.59: The default settings for generating the Virtual Machines – Right Sizing report

8. Next, indicate the report **Timeperiod**.
9. Then, specify the **Timeline** for which the report is to be generated. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

10. eG Enterprise allows users to generate desired reports for a specific time period. In large environments, while generating reports for long time periods, say a few weeks to months, report generation was found to slow down, owing to the large volume of data being processed. If users needed to generate many such reports quickly, the slowdown compelled them to generate these reports one after another, thus affecting the speed of their operations, and consequently, their productivity. eG Enterprise now includes a background processing feature that will enable users to process multiple reports, spanning long time periods in the background, while allowing them the bandwidth to generate short-term reports in the foreground. This way, users can generate multiple reports with little-to-no loss of time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

Note

11. Finally, click the **Run Report** button.

VM Right Sizing Report – VMware vSphere ESX – Oversized VMs by CPU Usage

Host	VM	VCPU Usage (%)			Avg Ready Time(%)	Number Of VCPUs	Is VM Oversized?	Remarks
		Min	Max	Avg				
VmwareEsx15	BugTracker (9....	1.05	43.89	2.83	0.06	1	No	-
VmwareEsx15	CBR-ESX-VPX(8...	0.33	0.42	0.36	0.06	2	Yes	vCPU utilization...
VmwareEsx15	CentOS-7.0	0.63	1.09	0.77	0.08	1	No	-
VmwareEsx15	DB2v10.5 (11.11)	4.35	100	14.96	0.25	1	No	-
VmwareEsx15	eG-Manager [1...	0.58	12.61	1.69	0.05	1	No	-
VmwareEsx15	eGontapindia [...	1.36	31.11	8.15	0.09	2	Yes	vCPU utilization...
VmwareEsx15	Excalibur2 (11....	5.27	58.79	20.73	0.2	2	No	-
VmwareEsx15	IBM IMT(8.8)	0.48	1.9	0.86	0.04	1	No	-
VmwareEsx15	informix (11.19)	0.38	35.67	5.3	0.11	1	No	-
VmwareEsx15	InstallShield_10...	1.92	20.47	2.4	0.05	1	No	-

VM is not oversized VM is oversized

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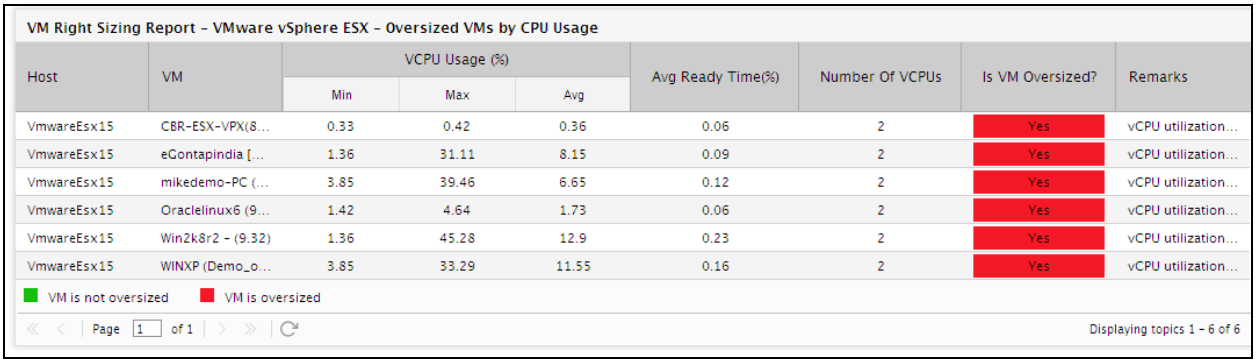
Figure 9.60: The Virtual Machines - Right Sizing Report

12. The Virtual Machines - Right Sizing report (see Figure 9.60) then appears. For each VM hosted for the chosen component, this report lists the percentage of vCPU that is utilized, the number of vCPUs and an indication of whether the VM is oversized/undersized. If a particular VM is oversized, then the value **Yes** encoded with **Red** color is specified in the **Is VM Oversized** column against that VM. The value **No** encoded with **Green** color in this column specifies that the VM is adequately sized. Likewise, if the VM is oversized, then a message will appear in the **Remarks** column suggesting you to reduce the **exact** number of vCPUs so that the VM can be optimally sized. The same procedure is followed to indicate the VMs that are undersized. In this case, the **Is VM Undersized** column is used to indicate the VMs that are undersized. Based on the **Number of vCPUs** and the **vCPU Usage** (see Figure 9.60) of the individual VM, you can conclude whether the VM is adequately sized or is currently oversized/undersized. Let us take the example of the VM **CBR-ESX-VPX** from Figure 9.60 which is currently indicated as oversized in this report. The Maximum vCPU Usage of this VM is just 0.42% and the

number of vCPUs allocated to this VM is 2. This indicates that the VM is utilized sparsely and the vCPU resources allocated for this VM is more than enough and is not completely utilized. Therefore we can consider reducing the number of vCPUs for this VM so that the VM can be optimally sized and the vCPU resource be effectively utilized by the VMs that require the most. The eG Enterprise system, using its internal calculation, intelligently arrives on the exact number of vCPUs that need to be reduced for optimally sizing the VM. This exact number will be displayed in the **Remarks** column.

6. By default, the **Host** column of this report will be sorted in ascending order which is indicated by an Up arrow. You can sort this report based on any column by just clicking on the column name – say for example, if you wish to sort the report based on the Number of vCPUs column, then simply clicking on the column will sort the report in descending order. Likewise you can sort the report based on any column.

13. If the **Criterion** chosen is **Oversized VMs by CPU usage** and the **Show Matching VMs Only** flag is set to **Yes**, then this report will list only the VMs that are currently oversized (see Figure 9.61).



VM Right Sizing Report - VMware vSphere ESX - Oversized VMs by CPU Usage

Host	VM	VCPU Usage (%)			Avg Ready Time(%)	Number Of VCPUs	Is VM Oversized?	Remarks
		Min	Max	Avg				
VmwareEsx15	CBR-ESX-VPX(8...	0.33	0.42	0.36	0.06	2	Yes	vCPU utilization...
VmwareEsx15	eGontapindia [...	1.36	31.11	8.15	0.09	2	Yes	vCPU utilization...
VmwareEsx15	mikedemo-PC (...	3.85	39.46	6.65	0.12	2	Yes	vCPU utilization...
VmwareEsx15	Oraclelinux6 (9...	1.42	4.64	1.73	0.06	2	Yes	vCPU utilization...
VmwareEsx15	Win2k8r2 - (9.32)	1.36	45.28	12.9	0.23	2	Yes	vCPU utilization...
VmwareEsx15	WINXP (Demo_o...	3.85	33.29	11.55	0.16	2	Yes	vCPU utilization...

VM is not oversized VM is oversized

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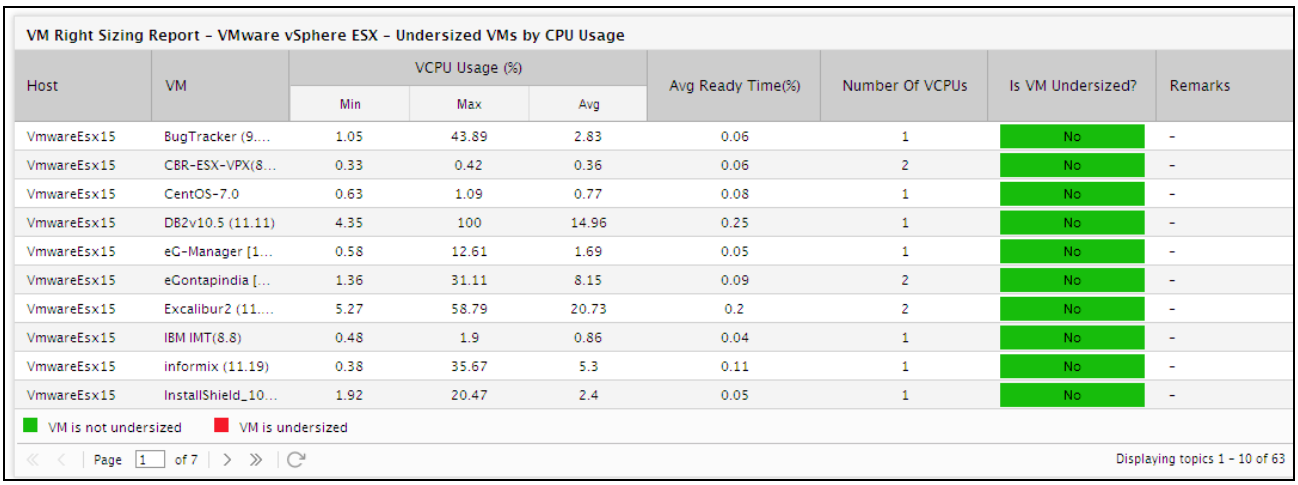
Figure 9.61: The Virtual Machines Right Sizing Report showing the VMs that are currently oversized

14. For generating a report on the VMs that are undersized, pick the **Undersized VMs by CPU Usage** option from the **Criterion** drop down list. Figure 9.62 shows a generated report for the VMs that are under utilized.



VM Right Sizing Report - VMware vSphere ESX - Undersized VMs by CPU Usage

Host	VM	VCPU Usage (%)			Avg Ready Time(%)	Number Of VCPUs	Is VM Undersized?	Remarks
		Min	Max	Avg				
VmwareEsx15	BugTracker (9....	1.05	43.89	2.83	0.06	1	No	-
VmwareEsx15	CBR-ESX-VPX(8...	0.33	0.42	0.36	0.06	2	No	-
VmwareEsx15	CentOS-7.0	0.63	1.09	0.77	0.08	1	No	-
VmwareEsx15	DB2v10.5 (11.11)	4.35	100	14.96	0.25	1	No	-
VmwareEsx15	eG-Manager [1...	0.58	12.61	1.69	0.05	1	No	-
VmwareEsx15	eGontapindia [...	1.36	31.11	8.15	0.09	2	No	-
VmwareEsx15	Excalibur2 (11....	5.27	58.79	20.73	0.2	2	No	-
VmwareEsx15	IBM IMT(8.8)	0.48	1.9	0.86	0.04	1	No	-
VmwareEsx15	informix (11.19)	0.38	35.67	5.3	0.11	1	No	-
VmwareEsx15	InstallShield_10...	1.92	20.47	2.4	0.05	1	No	-

VM is not undersized VM is undersized

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Figure 9.62: The Vitual Machines - Right Sizing Report showing the VMs that are currently undersized

15. If the Average vCPU utilization of a VM is considerably high and a fewer number of vCPUs are allocated for that VM, then we can conclude that the VM is currently undersized. The **Remarks** column of that VM will suggest you to increase the number of vCPUs allocated to the VM.

9.12 The Virtualization Manager Report

The **Virtualization Manager** report tracks the performance history of vCenter installations in the target environment, so that administrators are able to perform the following effectively:

- Determine how healthy the vCenter server as a whole has been over a broad period of time;
- Take a closer look at the overall performance of the critical components of vCenter - i.e., clusters and individual physical servers managed by vCenter - over time;
- Detect peculiar problem patterns, and analyze the root-cause of recurring performance issues.

Using the pointers provided by the report, administrators can answer the following questions quickly and precisely:

- Has the vCenter server been sized adequately, or did the server experience frequent resource inadequacies?
- How often during the designated period could a connection to vCenter not be established? What were the common reasons for this failure?
- On an average, how many physical servers were managed by a vCenter installation over time? Was any vCenter instance overloaded?
- Were any physical servers not responding to vCenter for a long period of time?
- Were any physical servers disconnected from vCenter during the given period?
- Were sufficient CPU and memory resources allocated to the physical server clusters configured on vCenter? Did the clusters experience any resource shortage at any point of time during the given period?
- Did the clusters use the allocated resources optimally, or were the clusters resource-intensive? To which vCenter/XenCenter server were resource-intensive clusters affiliated?
- What about the physical servers managed by vCenter? Were these servers sized properly?
- Did the physical servers consume the physical resources available to them excessively over time? Which vCenter instance was managing the resource-hungry physical servers?
- Did the network traffic to and from the physical servers increase/decrease with time?
- How many powered-on guests were on the physical servers during the stated period? Did this count change too frequently?
- During what times did vCenter Vmotion guests to a physical server, and when did it remove guests from a server? How did this movement impact server performance?

While this report is typically generated for pre-configured metrics, users can modify the configuration (if need be) by adding more metrics, removing one/more of the existing metrics, or by applying additional functions to the metrics.

To generate the **Virtualization Manager** report, do the following:

1. Select the **Virtualization Manager** option from the **vCenter Reports** node of the **REPORTS BY FUNCTION** tree in the eG Reporter interface.

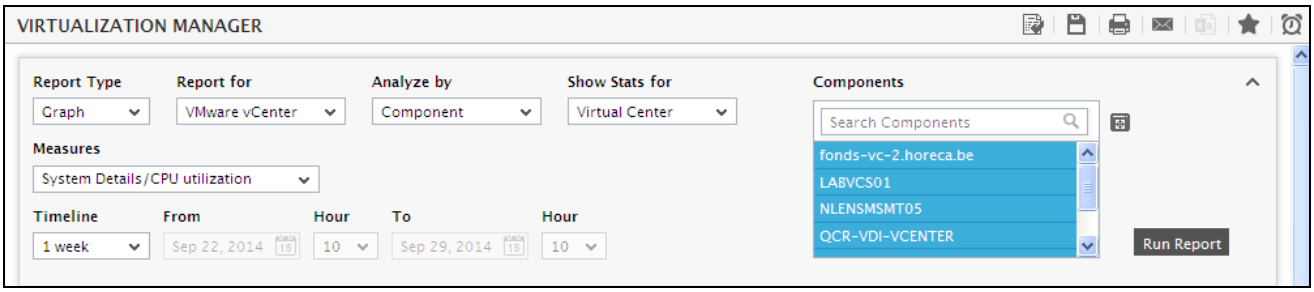


Figure 9.63: Selecting the criteria for the Virtualization Manager report

2. When Figure 9.63 appears, first, indicate the type of report to be generated by selecting an option from the **Report Type** field. To generate a graphical report, select the **Graph** option. To generate a report that displays desired metrics in a tabular format, select the **Data** option.

3. Next, indicate which vCenter component the report is meant for - currently, reports can be generated for *VMware vCenter* only. Therefore, this option is chosen by default from the **Report for** list.

4. If the vCenter(s) for which the report is to be generated is part of a zone, then select the **Zone** option from the **Analyze by** list, and then pick the **Zone** to which the vCenter server has been added. By default, the **Zone** list will include only the parent zones that contain vCenters. If you want to generate this report for vCenters that are included in sub-zones, then set the **Include subzone** flag to **Yes**. On the other hand, to generate this report for one/more independent VCenters, just select **Component** from the **Analyze by** list.

5. The **Components** list will then be populated with the vCenters that match the **Analyze by** criteria specified earlier. From this list, select the vCenter server(s) for which the report is to be generated. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.

6. Using this report, you can analyze the performance of any of the following:

   - The chosen vCenter server;
   - The clusters configured on the chosen vCenter
   - The physical servers managed by the selected vCenter server.

   Accordingly, you can select the **Virtual Center**, **Virtual Center Cluster**, or **Physical Servers** option from the **Show Stats for** list.

7. The **Measures** list will be available only for a **Graph** report and not the **Data** report. Based on the option chosen from the **Show Stats for** list, the elements of the **Measures** list will change. For instance:

   - If the option selected from the **Show Stats for** list is **Virtual Center**, then the **Measures** list will be populated with a default set of *test/measure* pairs that reveal the resource usage by the chosen vCenters, availability of the vCenters over the network, and the health of the interactions between the vCenter and the physical servers it manages;
   - If the option selected from the **Show Stats for** list is **Virtual Center Cluster**, then the **Measures** list will be populated with a default set of *test/measure* pairs that reveal the resource allocations and resource usage by the clusters configured on the chosen vCenters;
   - If the option selected from the **Show Stats for** list is **Physical Servers**, then the **Measures** list will be populated with a default set of *test/measure* pairs that reveal the health of the physical servers managed by the chosen vCenters;

All the above default settings can be overridden by the user using the **eg_report.ini** file (in the **<eg_install_dir>\manager\config** directory), where he/she can add more metrics for use in the report, remove a few of the existing metrics, or simply apply additional functions (Avg, Max, etc.) on the metrics, so that users can more effectively analyze performance over time;

8. Pick any *test/measure* combination from the **Measures** list to generate a report.
9. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

10. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **RUN REPORT BUTTON** soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.64). The steps below discuss each of these settings and how they can be customized.

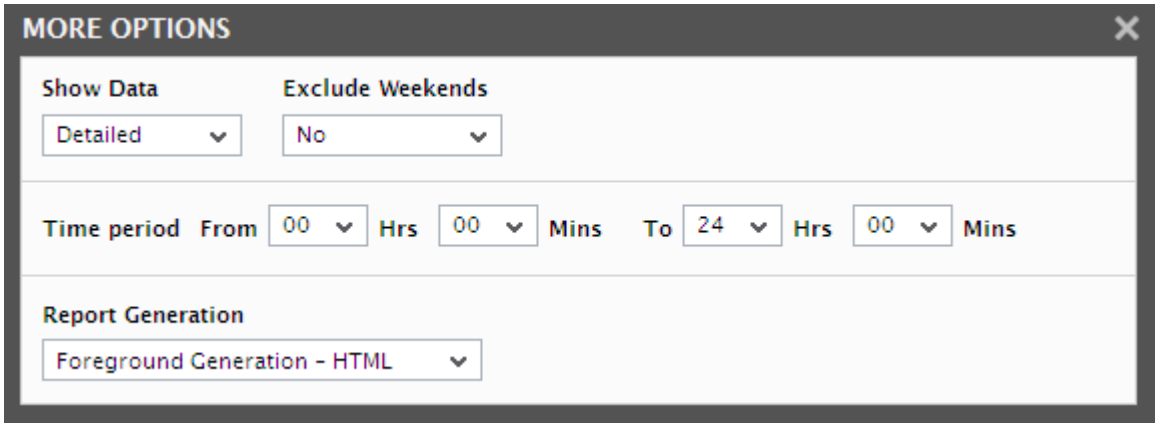


Figure 9.64: The default settings for generating the Virtualization Manager report

11. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.64. By default, the **Detailed** option is selected in Figure 9.64 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

    - Login to the eG administrative interface as 'admin'.
    - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
    - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
  - In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
  - Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
  - For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
  - Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.7) informing you that only the **Trend** option is permitted.
  - To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

12. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes Saturday and Sunday. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_CENTER]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday**,**Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday**,**Saturday**.
- Save the file after making the required changes.

13. Next, indicate the report **Time period**.
14. eG Enterprise allows users to generate desired reports for a specific time period. In large environments, while generating reports for long time periods, say a few weeks to months, report generation was found to slow down, owing to the large volume of data being processed. If users needed to generate many such reports quickly, the slowdown compelled them to generate these reports one after another, thus affecting the speed of their operations, and consequently, their productivity. eG Enterprise now includes a background processing feature that will enable users to process multiple reports, spanning long time periods in the background, while allowing them the bandwidth to generate short-term reports in the foreground. This way, users can generate multiple reports with little-to-no loss of time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

15. Finally, click the **Run Report** button.

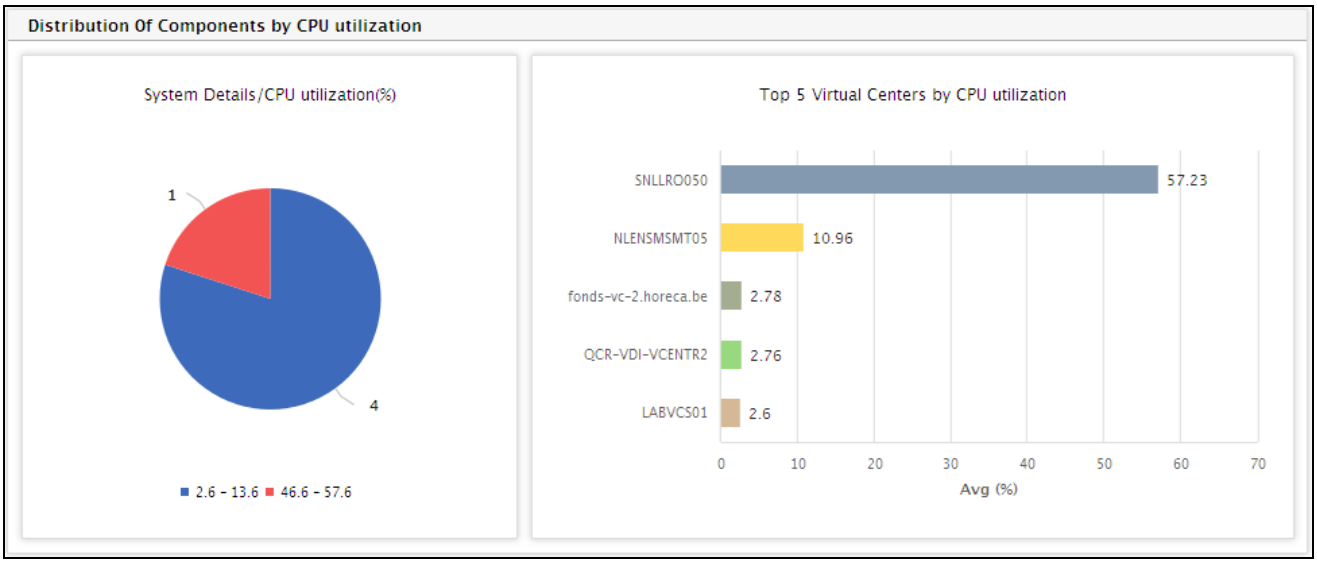


Figure 9.65: The graphical Virtualization Manager report

16. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 9.65 will appear comprising of the following:

    - A distribution pie chart that reveals the number of vCenters in different distribution ranges (see Figure 9.65). The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *CPU Utilization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *CPU Utilization* - alone is calculated for every vCenter chosen from the **Components** list. The resulting pie chart enables administrators to deduce, at a glance, the number of components where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the vCenter servers that fall within the value range represented by that slice (see Figure 9.66). Against every vCenter name, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A zone/component-type-level **Summary** of the chosen **Measure** will also be available.

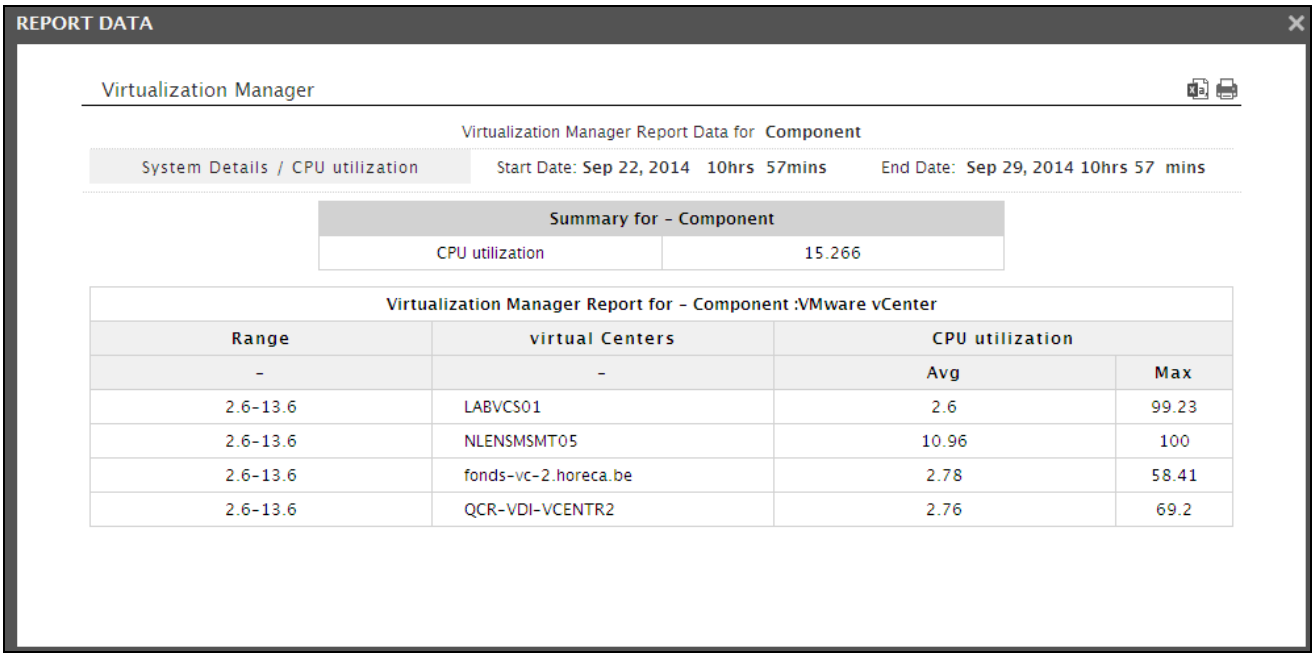


Figure 9.66: A list of vCenters and the CPU Utilization of each Virtual Center

By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

Note

➢ By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

➢ Adjacent to the pie chart, you will find a bar chart that indicates the vCenters that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *CPU Utilization* measure, this bar chart reveals the vCenters that are consuming too much of CPU resources. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_CENTER]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL _GUEST]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

- The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:
- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **NoOfServersforChart** parameter in the **[VIRTUAL_CENTER]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear.
- Finally, save the **eg_report.ini** file.

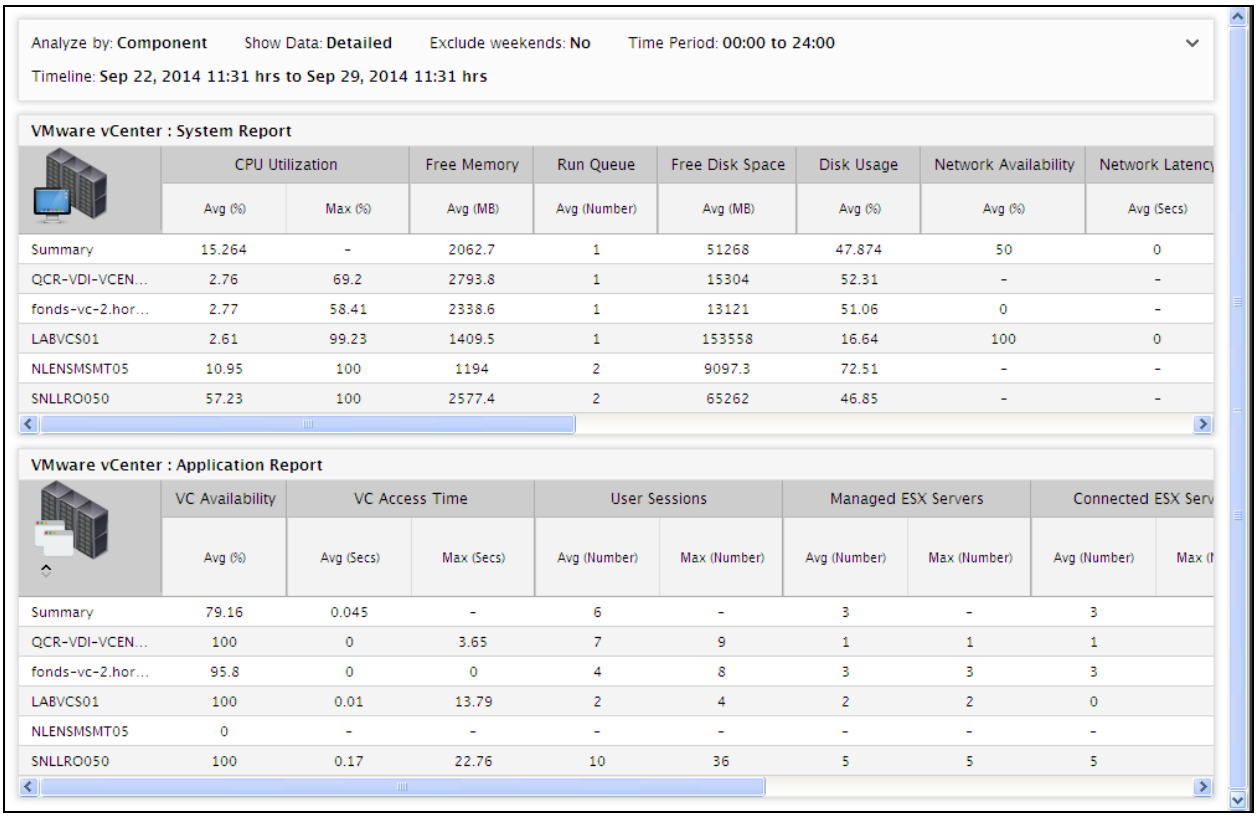
17. Unlike a **Graph** report, a **Data** report does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report.
18. If the **Report Type** is **Data**, then the report can be configured to include data pertaining to **vCenters**, **VM Clusters**, and/or **Physical Servers**. You can indicate your choice by selecting one/more check boxes against the **Include Stats for** field.

Figure 9.67: Specifying the criteria for a VCenters Data report

19. Also, if the **VM Clusters** check box is selected, you would be allowed to select a report column name from the **Sort by** list. This is the column by which the report data will be sorted.

20. Once the **Run Report** button is clicked, the **Data** report will appear displaying multiple values for a chosen measure depending upon the number and type of functions that have been configured for the measure. Moreover, to enable you to understand and analyze the metrics better, eG Enterprise groups the metrics under various heads, and dedicates a section each in the report for every metric group. The sections that are displayed in the report vary according to the check boxes selected against **Include Stats for**.

    For instance, if the **vCenters** option is chosen from **Include Stats for**, the resulting report will include two sections - namely, the **System Report** section and the **Application Report** section. Typically, the **System Report** section groups all host-level metrics pertaining to the chosen vCenter servers - in other words, it reveals the health of the operating system on which each vCenter server functions. The **Application Report** section on the other hand delves deep into the performance of the vCenter application as such, and reveals those metrics that shed light on the health of key functions of the vCenter, such as, how well the vCenter manages physical servers, how quickly can the vCenter be accessed, the availability of vCenter, etc. In addition to vCenter-wise performance information, these sections also provide a **Summary** of the operating system and application health (as the case may be) across the chosen **Components**.



Analyze by: **Component** Show Data: **Detailed** Exclude weekends: **No** Time Period: **00:00 to 24:00**

Timeline: **Sep 22, 2014 11:31 hrs to Sep 29, 2014 11:31 hrs**

VMware vCenter : System Report

	CPU Utilization		Free Memory	Run Queue	Free Disk Space	Disk Usage	Network Availability	Network Latency
	Avg (%)	Max (%)	Avg (MB)	Avg (Number)	Avg (MB)	Avg (%)	Avg (%)	Avg (Secs)
Summary	15.264	-	2062.7	1	51268	47.874	50	0
QCR-VDI-VCEN...	2.76	69.2	2793.8	1	15304	52.31	-	-
fonds-vc-2.hor...	2.77	58.41	2338.6	1	13121	51.06	0	-
LABVCS01	2.61	99.23	1409.5	1	153558	16.64	100	0
NLENSMSMT05	10.95	100	1194	2	9097.3	72.51	-	-
SNLLRO050	57.23	100	2577.4	2	65262	46.85	-	-

VMware vCenter : Application Report

	VC Availability	VC Access Time		User Sessions		Managed ESX Servers		Connected ESX Serv	
	Avg (%)	Avg (Secs)	Max (Secs)	Avg (Number)	Max (Number)	Avg (Number)	Max (Number)	Avg (Number)	Max (I
Summary	79.16	0.045	-	6	-	3	-	3	
QCR-VDI-VCEN...	100	0	3.65	7	9	1	1	1	
fonds-vc-2.hor...	95.8	0	0	4	8	3	3	3	
LABVCS01	100	0.01	13.79	2	4	2	2	0	
NLENSMSMT05	0	-	-	-	-	-	-	-	
SNLLRO050	100	0.17	22.76	10	36	5	5	5	

Figure 9.68: A Virtualization Manager Data Report if the 'Include Stats for' flag is set to 'vCenters'

To instantly determine the overall health of the vCenter application over time, just take a look at the values displayed in the **Health %** column of Figure 9.68. Clicking on this value for any vCenter will lead you to an Executive Report that will enable you to decipher the reasons for the ill-health of a vCenter (see Figure 9.69).

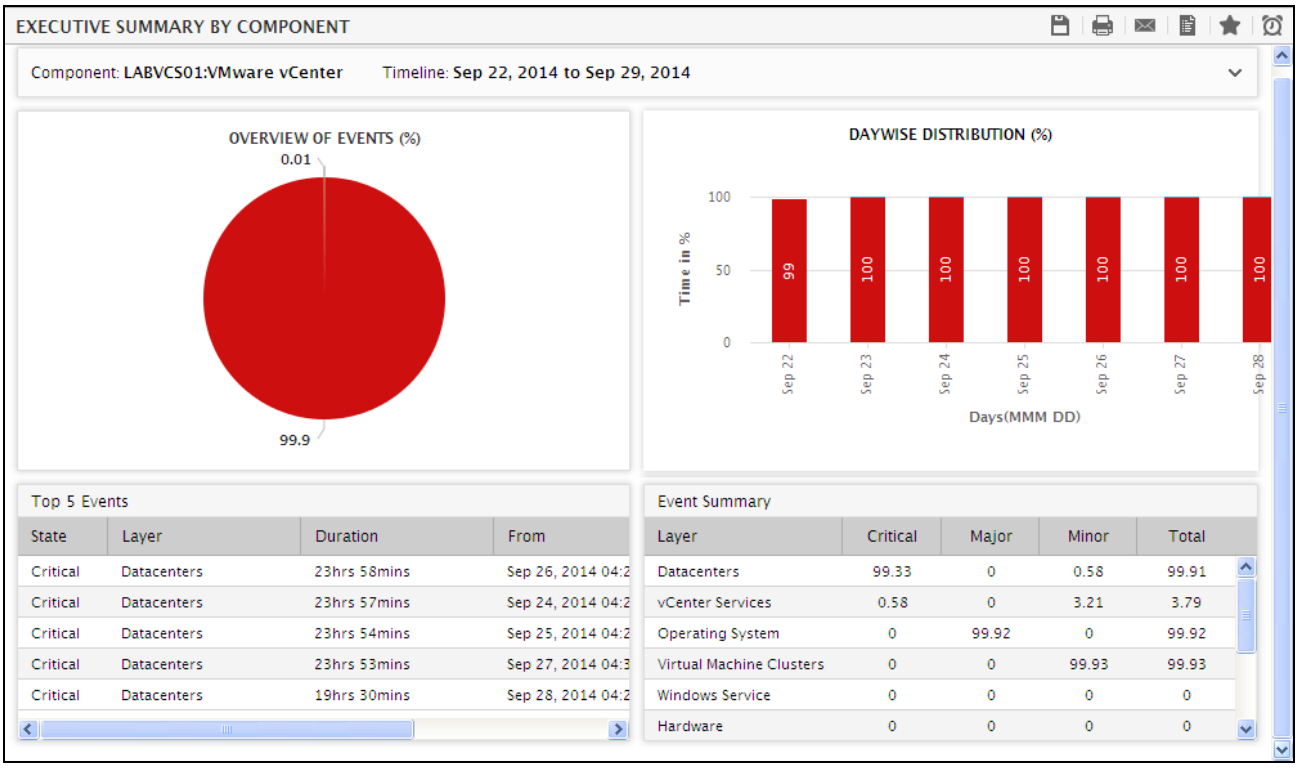


Figure 9.69: The Executive Report of a vCenter server

21. Clicking on a particular vCenter link in Figure 9.68 reveals the clusters managed by that vCenter server and the memory and CPU usage metrics related to each cluster (see Figure 9.70.

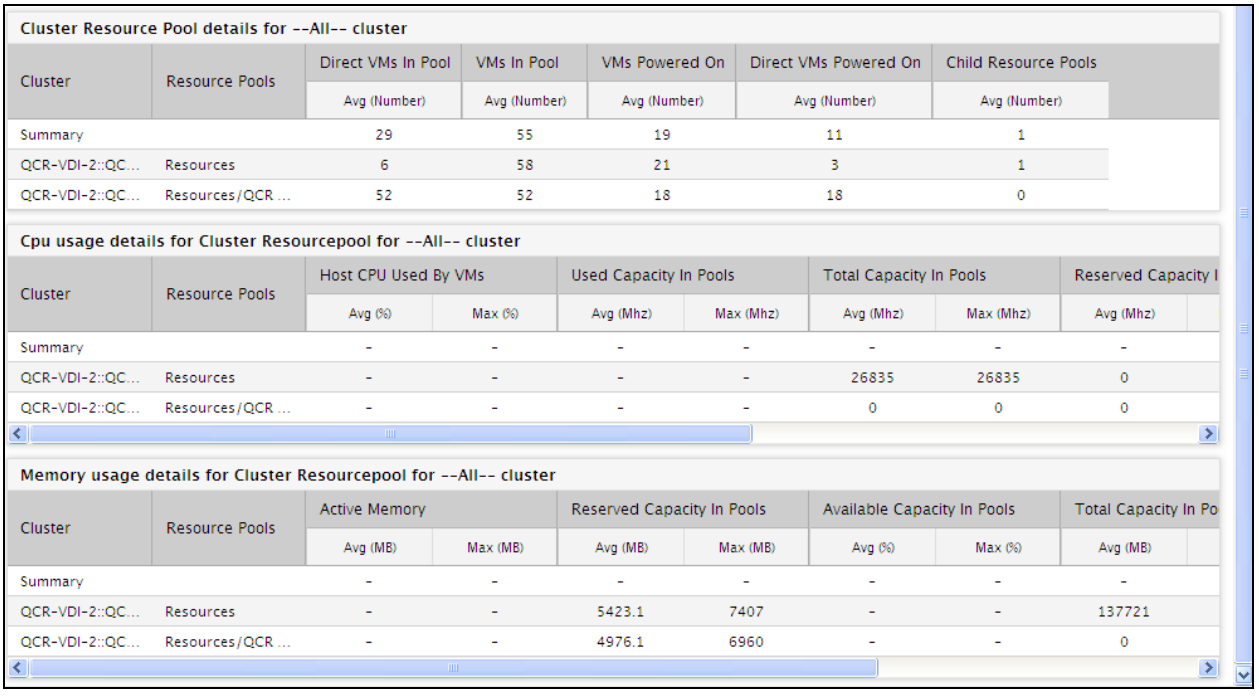
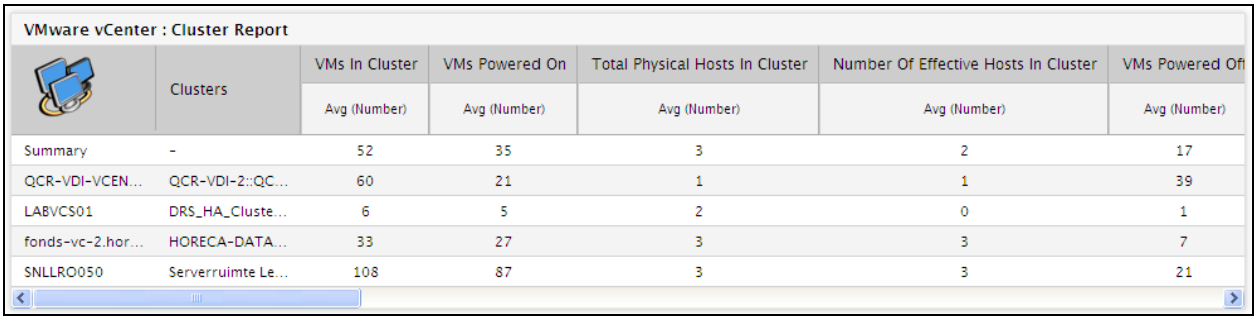


Figure 9.70: The Cluster Details report of the vCenter clicked on

22. If the **VM Clusters** option is chosen from the **Include Stats for** field, then, a **Cluster Report** section alone will appear that lists the user-configured cluster-related metrics pertaining to each of the chosen vCenter servers. Here again, a **Summary** of cluster performance across the chosen components will be available.

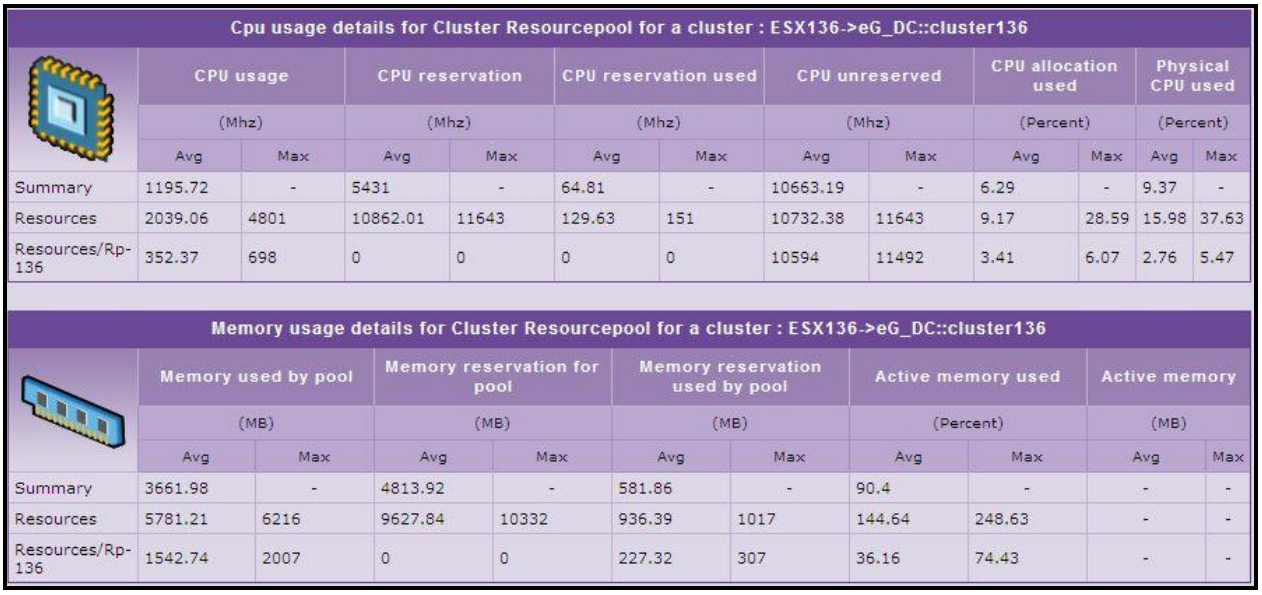


VMware vCenter : Cluster Report

Clusters		VMs In Cluster	VMs Powered On	Total Physical Hosts In Cluster	Number Of Effective Hosts In Cluster	VMs Powered Off
		Avg (Number)	Avg (Number)	Avg (Number)	Avg (Number)	Avg (Number)
Summary	-	52	35	3	2	17
QCR-VDI-VCEN...	QCR-VDI-2::QC...	60	21	1	1	39
LABVCS01	DRS_HA_Cluste...	6	5	2	0	1
fonds-vc-2.hor...	HORECA-DATA...	33	27	3	3	7
SNLLRO050	Serverruimte Le...	108	87	3	3	21

Figure 9.71: A vCenters Data report if the 'Include Stats for' flag is set to 'VM Clusters'

23. While clicking on a vCenter server in Figure 9.71 leads you to the **Cluster Details** report of that vCenter server, clicking on a cluster link in Figure 9.71 leads you to the **Cluster Details** report of that cluster, which lists the resource pools within the cluster, and the resource usage of each pool (see Figure 9.72).



Cpu usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used	
	(Mhz)		(Mhz)		(Mhz)		(Mhz)		(Percent)		(Percent)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	1195.72	-	5431	-	64.81	-	10663.19	-	6.29	-	9.37	-
Resources	2039.06	4801	10862.01	11643	129.63	151	10732.38	11643	9.17	28.59	15.98	37.63
Resources/Rp-136	352.37	698	0	0	0	0	10594	11492	3.41	6.07	2.76	5.47

Memory usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Active memory used		Active memory	
	(MB)		(MB)		(MB)		(Percent)		(MB)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	3661.98	-	4813.92	-	581.86	-	90.4	-	-	-
Resources	5781.21	6216	9627.84	10332	936.39	1017	144.64	248.63	-	-
Resources/Rp-136	1542.74	2007	0	0	227.32	307	36.16	74.43	-	-

Figure 9.72: The Cluster Details report of a cluster clicked on

24. Similarly, if the **Physical Servers** option is chosen, then, a **Physical Server Report** alone will be available, which displays the historical performance data related to the physical servers managed by each of the chosen vCenter servers. This section again will provide a **Summary** of the resource usage by physical servers managed across the chosen vCenter components.

vCenters : Physical Server Report for VMware ESX(i)

	Physical Servers	Registered VMs	Powered On VMs		Consumed Memory	Free Memory	CPU Usage	Disk Usage	Disk Commands	Disk Command Aborts	Network Traffic Out	Network Traffic In	Netw Usa
		(Number)	(Number)		(MB)	(%)	(%)	(%)	(Cmds/Sec)	(Aborts/sec)	(Mbps)	(Mbps)	(Mb
		Avg	Avg	Max	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Av
Summary	-	**7.78**	**4.99**	-	**3420.85**	**44.27**	**22.7**	**96**	**397.19**	**0**	**1.29**	**1.22**	**2.51**
virtual_center_10.15	Esxi_136	7.77	5.71	7	3294.41	46.34	13.54	97.71	38.47	0	0.67	0.51	1.18
virtual_center_10.15	esx_179	7.78	4.27	5	3547.29	42.19	31.87	94.28	755.92	0	1.92	1.92	3.84

Figure 9.73: A vCenters Data report if the 'Include Stats for' flag is set to 'Physical Servers'

25. Click on a **Physical Server** link in Figure 9.73 to view a **Server Report** of that ESX server, using which the overall health of the server can be determined (see Figure 9.74).

Server Report for : Esxi_136: VMware vSphere ESX <<

Measures (Unit)	Avg	Max	Graph
Network availability (%)	100	100	
Network delay avg (Secs)	0.0063	0.7668	
TCP port availability (Percent)	100	100	
Powered guests (Number)	5.7151	7	
Cpu usage (%)	13.536	85.85	
Free memory (MB)	2843.9763	3149.1901	
Data transmits (Mbps)	0.6638	12.6172	
Data received (Mbps)	0.5099	24.4141	
Disk usage (%)	97.7152	99.324	
Guest CPU (%)	1.728	24.3088	
Active memory (MB)	92.2182	768	

Figure 9.74: The Server Report of the ESX server clicked on in the vCenter Data Report

The metrics displayed under every section of the **Data** report and the functions to be applied on every measure are pre-configured. The same configuration applies to the **Measures** list in the case of a **Graph** report. To override this default configuration, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_CENTER]** section of the file, you can add/remove metrics and functions to every section in the data report. For instance, to add a measure to the **System Report** section of the data report, insert a line in the following format:

Virtual_center:System:<InternalTestName>:<InternalMeasureName>#

<MeasureDisplayName>=<Comma-separated list of functions>

For instance, to add the **Run queue length** measure to the **System Report** section, do the following:

Virtual_center:System:SystemTest:Run_queue_length#Run queue=Avg,Max

Similarly, to display an additional measure and related functions in the **Application Report** section of the data report, your entry should be:

Virtual_center:Default:<InternalTestName>:<InternalMeasureName>#

<MeasureDisplayName>=<Comma-separated list of functions>

All the metrics configured for the 'System' group and 'Application' group will be listed in the 'Measures' list of the Graph report, if the option chosen from the 'Show Stats for' list is 'VCenters'.

Likewise, you can add a metric to the **Cluster Report** section of the data report:

Virtual_center:Cluster:<InternalTestName>:<InternalMeasureName>#

<MeasureDisplayName>=<Comma-separated list of functions>

All the metrics configured for the 'Cluster' group will be listed in the 'Measures' list of the Graph report, if the option chosen from the 'Show Stats for' list is 'VCenter Clusters'.

However, to add a measure to the **Physical Servers** section of the data report, you will have to move to the **[VIRTUAL_HOST]** section of the **eg_report.ini** file, and insert a line of the following format:

<InternalTestName>:<InternalMeasureName>#<MeasureDisplayName>=<Comma-separated list of functions>

For instance, to add the *Registered guests* measure to the **Physical Servers** section, your specification should be:

EsxGuestStatusTest:Registered_guests#Registered guests=Avg,Max

All the metrics configured under the [VIRTUAL_HOST] section will be listed in the 'Measures' list of the Graph report, if the option chosen from the 'Show Stats for' list is 'Physical Servers'.

- Finally, save the file.

9.13 Cluster Details Report

In large virtualized environments characterized by tens of physical servers and hundreds of VMs, manageability is a persistent issue. To ease the pain involved in managing such unwieldy environments, vCenter installations often group physical servers into clusters, and allocate resources to the cluster, instead of to the individual servers. The challenge here for the administrator is to continuously monitor the resource usage by clusters, and accordingly fine-tune allocations. The **Cluster Details** report that the eG Reporter offers provides this much-needed 'cluster-focus'.

The report provides you with historical insights into how well a chosen cluster / all clusters on a vCenter are utilizing the available resources. This way, resource-intensive clusters can be accurately identified. Also, by allowing administrators the flexibility to include the performance information related to the physical servers in the cluster, and the virtual machines executing on these physical servers, eG Enterprise enables administrators to zoom into the physical server / virtual machine that could be the root-cause of any resource contention at the cluster-level.

In short, the **Cluster Details** report, reveals the following:

- How many clusters have been configured on the vCenter? Which ones have been consistently consuming excessive resources?
- Which resource in particular is on demand at the cluster-level?
- Have adequate resources been allocated to the clusters in the first place?
- How many physical servers are included in the cluster? Which ones are they?
- How healthy have the physical servers been over time? Are there frequent complaints of resource shortages with the physical servers? Is this affecting cluster performance?

While this report is typically generated for pre-configured metrics, users can modify the configuration (if need be) by adding more metrics, removing one/more of the existing metrics, or by applying additional functions to the metrics.

To generate the report, do the following:

1. Select the **Cluster Details** option from the **vCenter Reports** node of the **REPORTS BY FUNCTION** tree.

Figure 9.75: Selecting the criteria for the Cluster Details report

2. When Figure 9.75 appears, first, indicate the **Report Type**. For a graphical representation of cluster performance, select the **Graph** option; for tabulated performance results, select the **Data** option. By default, the **Graph** option is chosen.
3. From the **Report for** list, **VMware vCenter** is chosen by default, indicating that the resulting report focuses on the performance of the clusters managed by vCenter.
4. Then, select a criterion for analysis from the **Analyze by** list box. Using this report, you can analyze the status of clusters managed by independent vCenter servers or those that are part of a segment, service, or a zone. The options provided by the **Analyze by** list box are discussed hereunder:

- **Component**: Select this option to choose the vCenter servers of interest to you from across all the managed vCenter servers in the environment. All managed vCenter servers will then populate the **Component** list. From this list, pick the vCenter servers for which the report is to be generated. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and **Select** the ones for which the report is to be generated.
- **Service**: Select this option to generate this report for all vCenter servers that are involved in the delivery of a business service. Then, select a **Service**.
- **Segment**: Choose this option if the clusters to be evaluated are configured on vCenter servers that are part of a segment. Then, pick a **Segment** for analysis.
- **Zone**: Pick this option for a report on the status of clusters managed on all vCenter servers that are included in a zone. Then, choose a **Zone**. Also, indicate whether the vCenter servers present within the sub-zones of the chosen zone are also to be to be considered for report generation, by selecting an option from the **Include subzone** list.

5. Then, from the **Measures** list pick the measure for which the report is to be generated.
6. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.76). The steps below discuss each of these settings and how they can be customized.

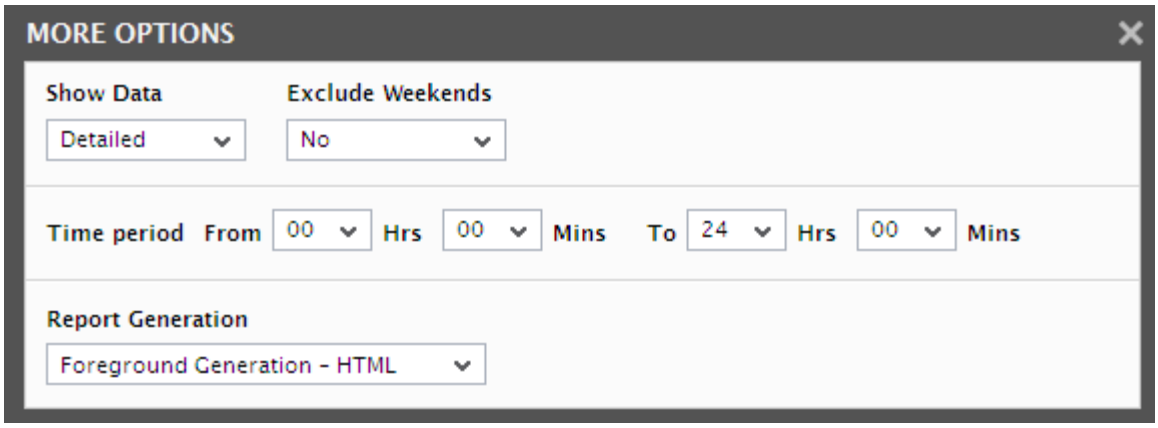


Figure 9.76: The default settings for generating a Cluster Details report

8. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.76. By default, the **Detailed** option is selected in Figure 9.76 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

   - Login to the eG administrative interface as 'admin'.
   - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
   - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to No, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.7) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

9. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_CLUSTER]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday**,**Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday**,**Saturday**.
- Save the file after making the required changes.

10. Next, indicate the report **Timeperiod**.

11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

12. Finally, click the **Run Report** button.

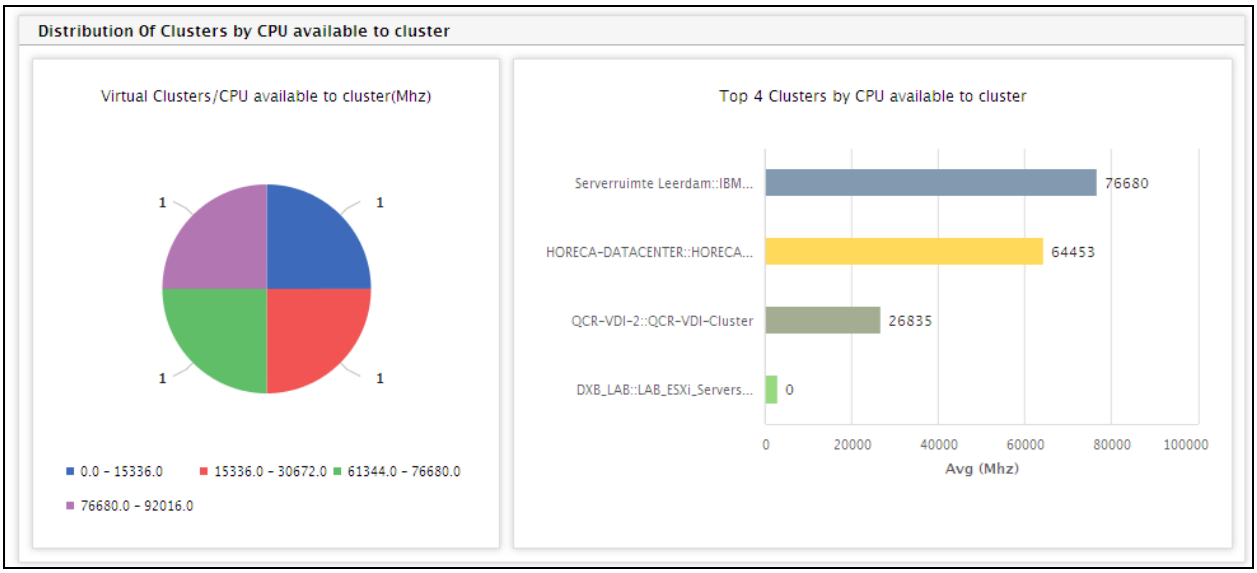


Figure 9.77: A graphical Cluster Details Report

13. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 9.77, which will reveal the following:

   - A distribution pie chart that reveals the number of clusters in different distribution ranges (see Figure 9.77). The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Physical CPU available to cluster* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Physical CPU available to cluster* - alone is calculated for every vC cluster managed by each vCenter chosen from the **Components** list. The resulting pie chart enables administrators to deduce, at a glance, whether the clusters managed by chosen vCenter servers are adequately sized or not. Clicking on a particular slice in the pie chart lists the clusters that fall within the value range represented by that slice (see Figure 9.78). Against every cluster, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A zone/component-type-level **Summary** of the chosen **Measure** will also be available.

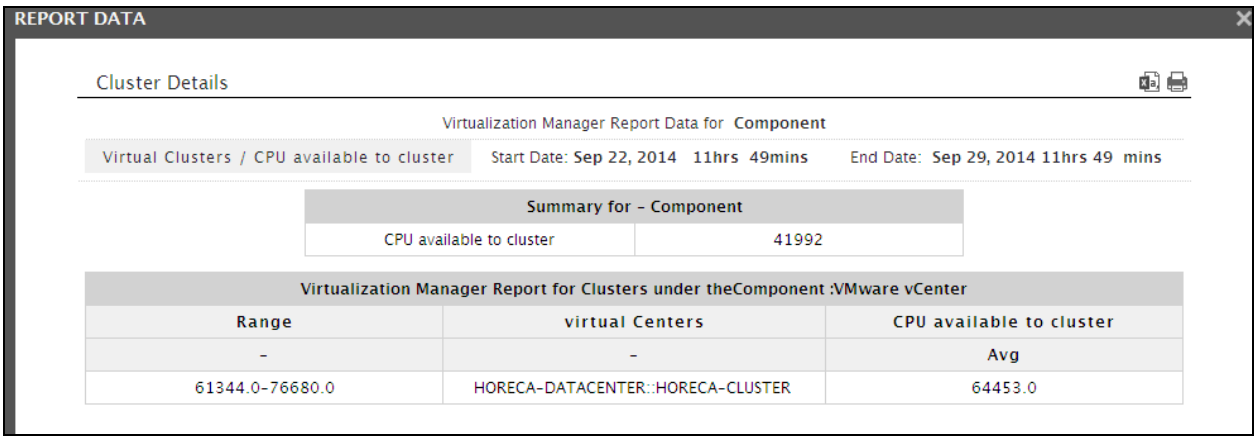


Figure 9.78: A list of vCenters and the number of ESX servers each one manages

By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

➢ Adjacent to the pie chart, you will find a bar chart that indicates the clusters that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified timeline. For example, for the *Physical CPU available to cluster* measure, this bar chart will help you quickly isolate those clusters that are and are not adequately sized in terms of CPU resources. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_CENTER]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_GUEST]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

- The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:
- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **NoOfServersforChart** parameter in the **[VIRTUAL_CENTER]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear.
- Finally, save the **eg_report.ini** file.

14. If **Data** is chosen as the **Report Type**, then, an **Include Stats for** section will additionally appear, from which you can pick what you want to view in your **Data** report. To perform a quick comparison of the resource availability and usage across clusters managed by the chosen vCenter servers, click on the **VMClusters** check box. Assuming that **Foreground Generation - HTML** is still the option chosen from the **Report Generation** list, clicking on the **Run Report** button will invoke Figure 9.79.

VMware vCenter : Cluster Report

	Clusters	VMs In Cluster	VMs Powered On	Total Physical Hosts In Cluster	Number Of Effective Hosts In Cluster	VMs Powered Of
		Avg (Number)	Avg (Number)	Avg (Number)	Avg (Number)	Avg (Number)
Summary	-	50	34	3	2	16
QCR-VDI-VCEN...	QCR-VDI-2::QC...	59	21	1	1	39
LABVCS01	DRS_HA_Cluste...	6	5	2	0	1
fonds-vc-2.hor...	HORECA-DATA...	33	26	3	3	7
SNLLRO050	Serverruimte Le...	101	85	3	3	17

Figure 9.79: The Data report comparing the resource usage across clusters

15. For every cluster managed by each chosen vCenter server, the report will display a set of pre-configured resource availability and resource usage metrics, with the help of which you can quickly isolate resource-intensive clusters. Clicking on a cluster, say the most CPU-intensive cluster, here will lead you to Figure 9.80 that will allow you to zoom into the performance of the resource pools in that cluster, so that you can analyze whether the excessive resource usage by one or more resource pools contributed to the resource contention at the cluster-level.

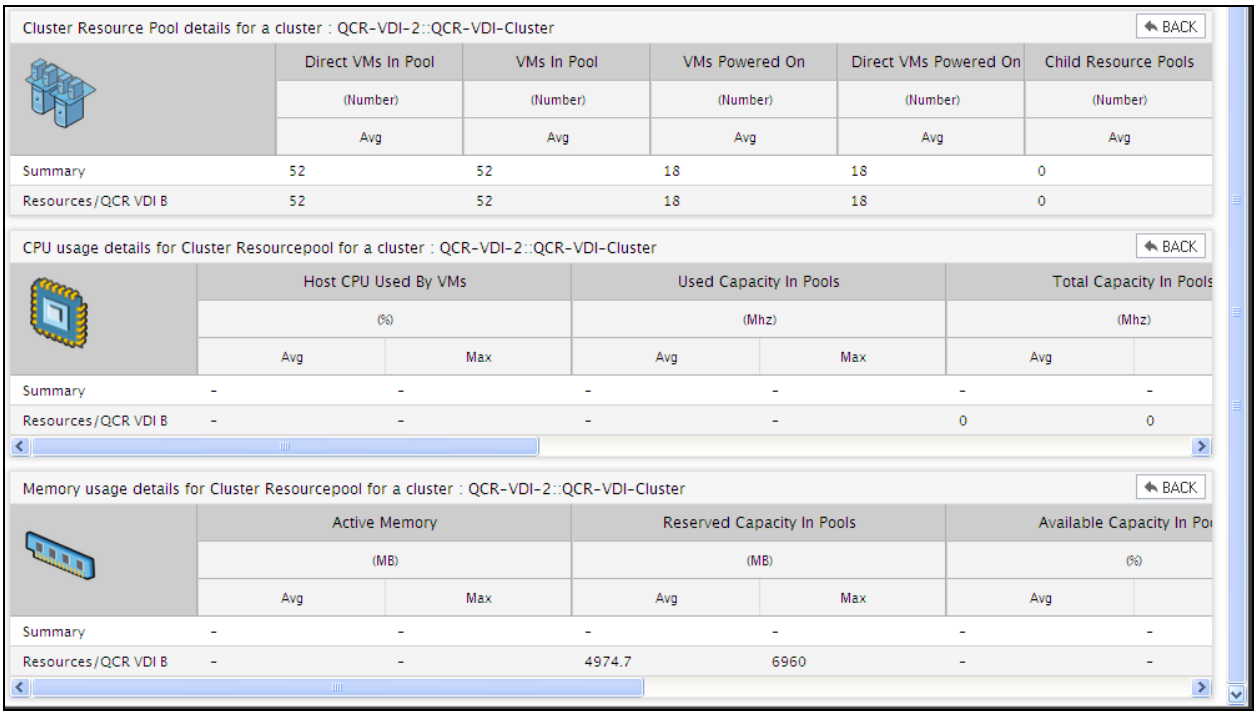

Cluster Resource Pool details for a cluster : QCR-VDI-2::QCR-VDI-Cluster
BACK
Direct VMs In Pool
VMs In Pool
VMs Powered On
Direct VMs Powered On
Child Resource Pools
(Number)
Avg
Summary 52 52 18 18 0
Resources/QCR VDI B 52 52 18 18 0
CPU usage details for Cluster Resourcepool for a cluster : QCR-VDI-2::QCR-VDI-Cluster
BACK
Host CPU Used By VMs
Used Capacity In Pools
Total Capacity In Pools
(%)
(Mhz)
Avg
Max
Summary - - - - - -
Resources/QCR VDI B - - - - 0 0
Memory usage details for Cluster Resourcepool for a cluster : QCR-VDI-2::QCR-VDI-Cluster
BACK
Active Memory
Reserved Capacity In Pools
(MB)
Summary - - - - - -
Resources/QCR VDI B - - 4974.7 6960 - -

Figure 9.80: The Resource Pools report that appears when a cluster is clicked on

16. On the other hand, if you choose the **Physical Servers** option from the **Include Stats for** section, then, clicking on the **Run Report** button will invoke Figure 9.81.

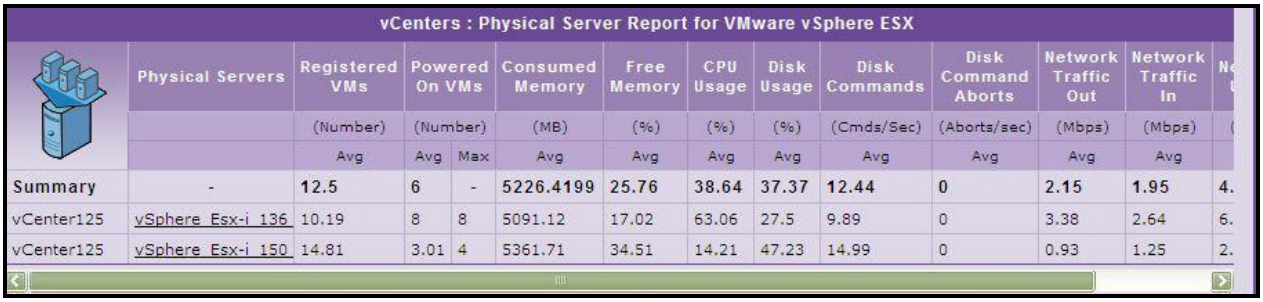


Figure 9.81: The Physical Servers report that appears when the 'Physical Servers' option is chosen from 'Include Stats for'

17. Using the report in Figure 9.81, you can precisely point your finger at that physical server in a cluster that is responsible for draining the physical resources available to the cluster. Clicking on a physical server here will lead you to Figure 9.82.

Server Report for : vSphere_Esx-i_136:
VMware vSphere ESX

Measures (Unit)	Avg	Max	Min	Graph
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0017	0.0051	0.0011	
TCP port availability (Percent)	100	100	100	
Powered guests (Number)	7.9967	8	7	
Cpu usage (%)	63.0578	100	24.3	
Free memory (MB)	1044.0086	1294.5228	891.3812	
Data transmits (Mbps)	3.3756	78.9609	0.6641	
Data received (Mbps)	2.6398	30.3125	0.1406	
Disk usage (%)	27.4968	80.4471	0.1831	
Guest CPU (%)	7.7082	96.685	0.4738	
Active memory (MB)	187.5412	600.4766	22.6797	

Figure 9.82: The server report that appears when the Physical Server in a Physical Servers report is clicked

18. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the icon in that page.

9.14 Cluster - Resource Pools Report

As resource-intensive VM resource pools configured on one/more vSphere/ESX servers in a cluster can drain the physical resources of the corresponding virtual hosts, and consequently affect the aggregated resource base of the cluster, it is imperative that you monitor the current and historical performance of the cluster resource pools, so that resource contentions can be captured early and resolved quickly. The **Cluster - Resource Pools** report enables you to perform just that. Besides helping you identify resource-hungry resource pools in a cluster, this report also enables you to isolate the VM in the pool that is responsible for the abnormal behavior of the pool (if any), and the physical servers on which these VMs operate.

To generate this report, do the following:

1. Select the **Resource Pools** option from the **vCenter Reports** node of the **REPORTS BY FUNCTION** tree.
2. Figure 9.83 will then appear.

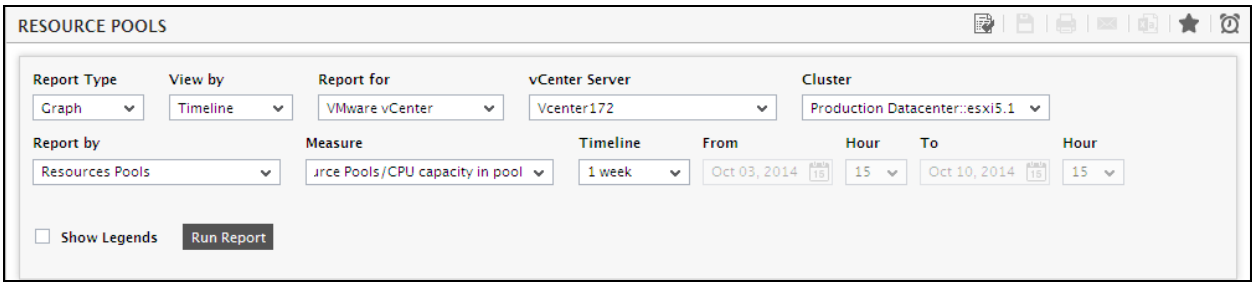


Figure 9.83: Providing the specifications of the Cluster - Resource Pools report

3. First, pick a **Report Type**. For a graphical representation of physical server performance, pick the **Graph** option. To view the metrics related to the resource usage of the physical servers in a cluster in a tabulated form, pick the **Data** option.
4. If the **Report Type** is **Graph**, then the **View by** list will offer 2 options - **Timeline** and **Distribution**. While the **Timeline** option will provide a time-of-day measure graph depicting resource pool performance, the **Distribution** option will result in distribution pie charts and bar graphs being displayed. The default selection is however **Timeline**.
5. By default, the **Report for** list will display **VMware vCenter** as its selection.
6. From the **vCenter Server** list, pick the vCenter server for which the report is to be generated.
7. Upon selecting the **vCenter Server**, the **Cluster** list will get automatically populated with those clusters that are being managed by the chosen **vCenter Server**. Pick a cluster for which this report is to be generated.
8. Then, pick an option from the **Report by** list. By default, the **Resource Pools** option will be chosen here.
9. Next, pick a measure for which a graph is to be generated, from the **Measure** list.
10. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

11. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.84). The steps below discuss each of these settings and how they can be customized.

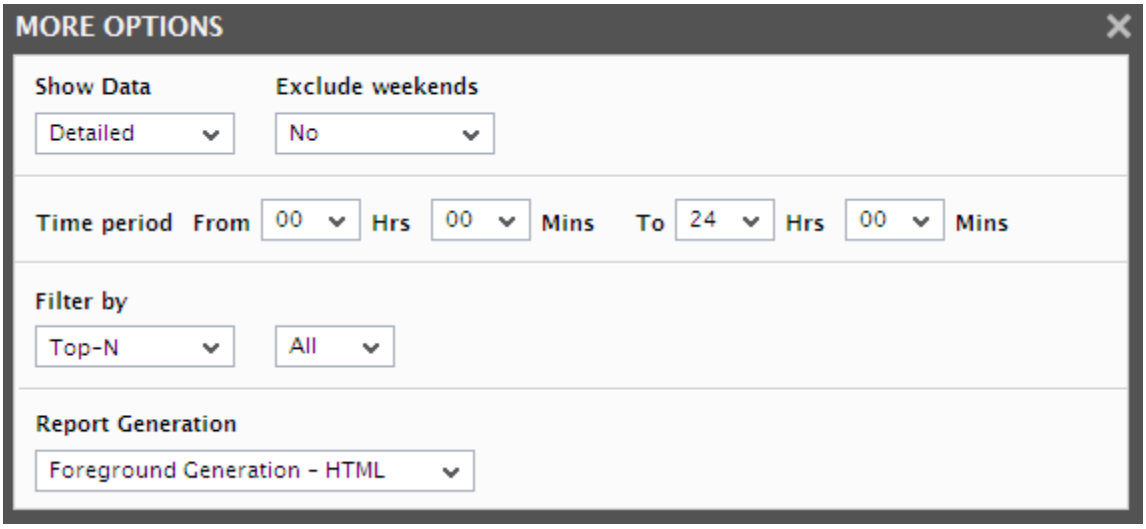


Figure 9.84: The default settings for generating the Cluster – Resource Pools report

12. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.84. By default, the **Detailed** option is selected in Figure 9.84 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

   - Login to the eG administrative interface as 'admin'.
   - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
   - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

13. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_CLUSTER]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

14. Next, indicate the report **Timeperiod**.
15. You can further filter the resultset of your report picking one of the following options from the **Filter by** list:
    - **Top -N** - Select this option and pick a number from the drop-down list adjacent to it to ensure that the resulting graph only plots the values of the specified number of top players in the chosen performance arena.
    - **Range** - Pick this option and provide a value range in the **From** and **To** text boxes that appear alongside.
    - **Greaterthan** - Pick this option and provide a value in the text box that appears alongside to view the details of only those resource pools which have registered a value greater than the value specified in that box for the chosen **Measure**.
    - **Lessthan** - Pick this option and provide a value in the text box that appears alongside to view the details of only those resource pools which have registered a value lesser than the value specified in that box for the chosen **Measure**.
16. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

17. Finally, click the **Run Report** button.
18. If the **Report Type** is **Graph**, the **View by** selection is **Timeline**, the **Report by** option is **Resource pools**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking the **RUN REPORT BUTTON** will invoke Figure 9.85.

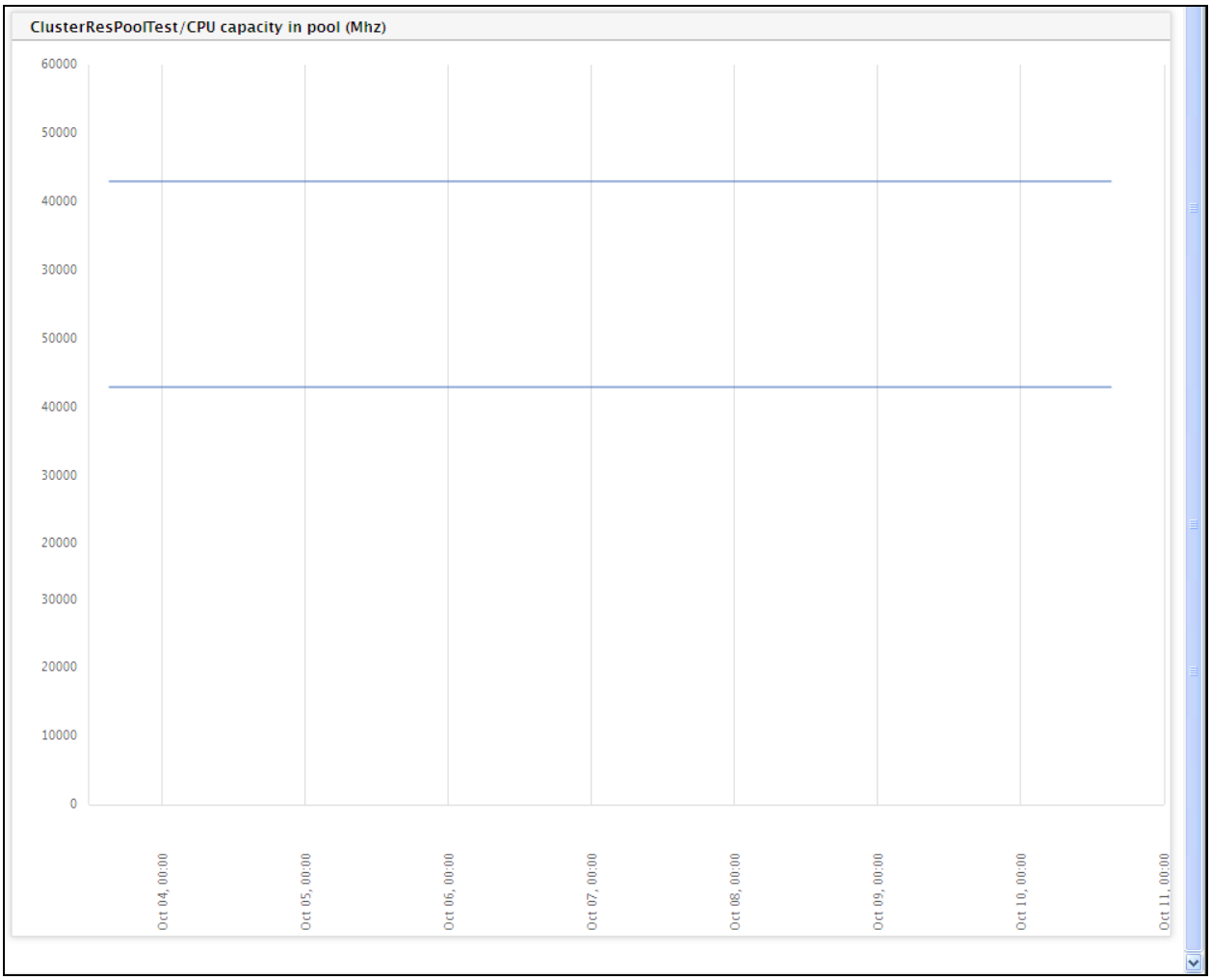


Figure 9.85: A Cluster - Resource Pools report if the 'View by' option chosen is 'Timeline' and 'Report by' option is 'Resource pools'

19. Figure 9.85, as you can see, displays a time-of-day graph - this graph compares the behavior of the chosen performance measure a crisis all the resource pools within the selected cluster during the specified timeline. For instance, if *CPU usage* is the **Measure** chosen, then this graph will compare the CPU usage of the resource pools in the cluster, thus visually enabling you to identify which resource pool is utilizing CPU excessively.

20. If the **Report Type** is **Graph**, the **View by** selection is **Timeline**, the **Report for** option is **Physical Servers**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking the **RUN REPORT BUTTON** will invoke Figure 9.86. The graph displayed in Figure 9.86 will enable you to quickly compare the chosen performance metric across all the physical servers in the selected cluster so that, resource-intensive servers in the cluster can be isolated.

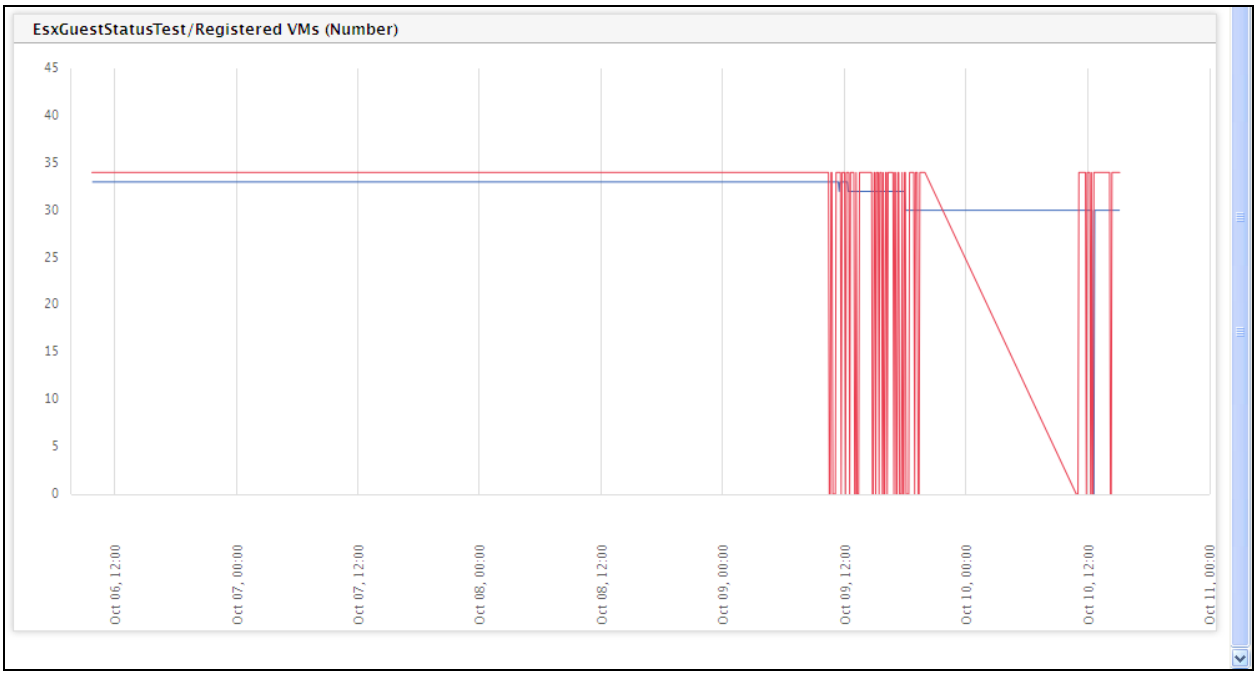


Figure 9.86: A Cluster - Resource pools report that appears when the 'View by' option is 'Timeline' and the 'Report by' option is 'Physical servers'

21. If the **Report Type** is **Graph**, the **View by** selection is **Timeline**, the **Report for** option is **Virtual Machines**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking the **RUN REPORT BUTTON** will invoke Figure 9.87. The graph displayed in Figure 9.87 will enable you to quickly compare the values of the chosen performance metric across all the virtual machines in the selected cluster so that, resource-intensive VMs in the cluster can be isolated.

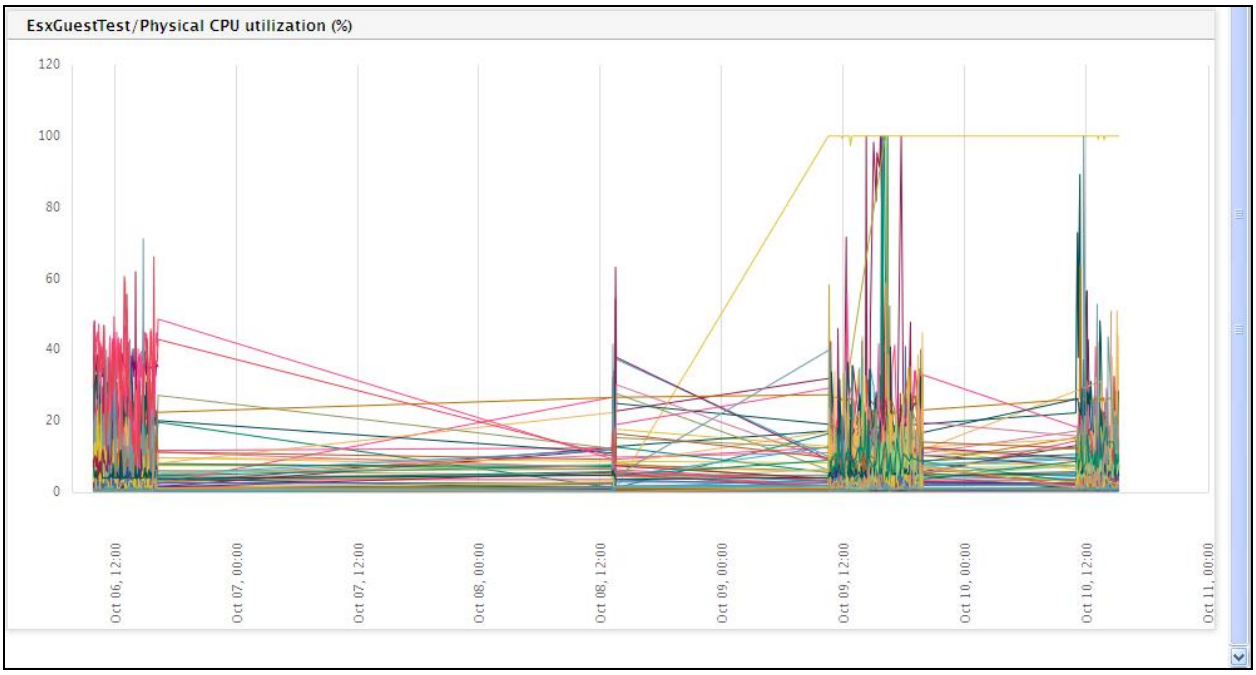


Figure 9.87: The Cluster -Resource pools report if the 'View by' selection is 'Timeline' and the 'Report by' selection is 'Virtual machines'

22. Now, if the **Report Type** is **Graph**, the **View by** selection is **Distribution**, the **Report by** option is **Resource Pools**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking the **RUN REPORT BUTTON** will invoke Figure 9.88.

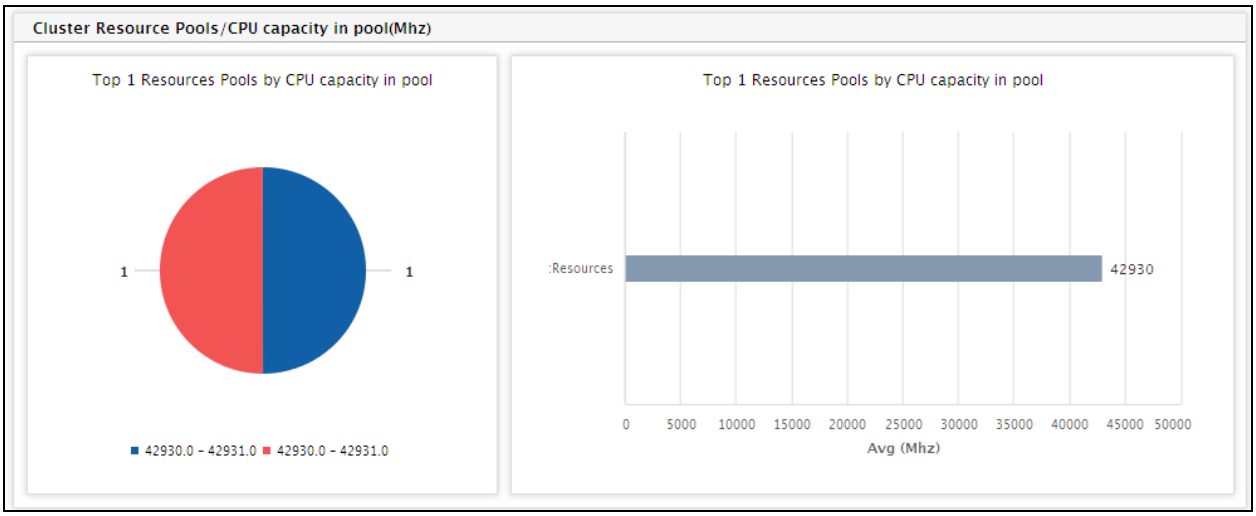


Figure 9.88: The Cluster - Resource Pools report where the 'View by' selection is 'Distribution' and the 'Report by' option is 'Resource Pools'

23. Figure 9.88 comprises of the following:

- A distribution pie chart that depicts the number of resource pools that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Direct VMs in pool* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured

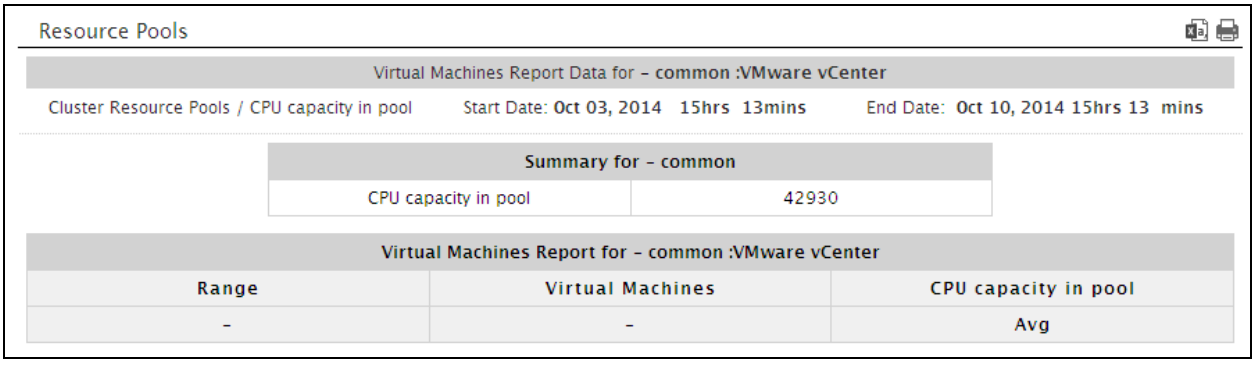
values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Direct VMs in pool* - alone is calculated for every resource pool in the chosen **Cluster**. The resulting pie chart enables administrators to deduce, at a glance, the number of resource pools where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the resource pools that fall within the value range represented by that slice (see Figure 9.89). Against every pool, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A cluster-level **Summary** of the chosen **Measure** will also be available.

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_CLUSTER]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.


Resource Pools

Virtual Machines Report Data for - common :VMware vCenter

Cluster Resource Pools / CPU capacity in pool Start Date: Oct 03, 2014 15hrs 13mins End Date: Oct 10, 2014 15hrs 13 mins

Summary for - common	
CPU capacity in pool	42930

Virtual Machines Report for - common :VMware vCenter		
Range	Virtual Machines	CPU capacity in pool
-	-	Avg

Figure 9.89: The physical servers that fall within the usage range clicked on

24. Adjacent to the pie chart, you will find a bar chart that indicates the resource pools that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Direct VMs in Pool* measure, this bar chart reveals the resource pools in the cluster with the maximum direct VMs. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_CLUSTER]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_CLUSTER]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

The number of components to be displayed in the Top <N> Components bar chart is configurable. To specify the number, select Top-N from the Filter by list in Figure 9.84, and pick an option from the adjacent drop-down list.

25. On the other hand, if the **Report Type** is **Graph**, the **View by** selection is **Distribution**, the **Report by** option is **Physical Servers**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking the **Run Report** button will invoke Figure 9.90.

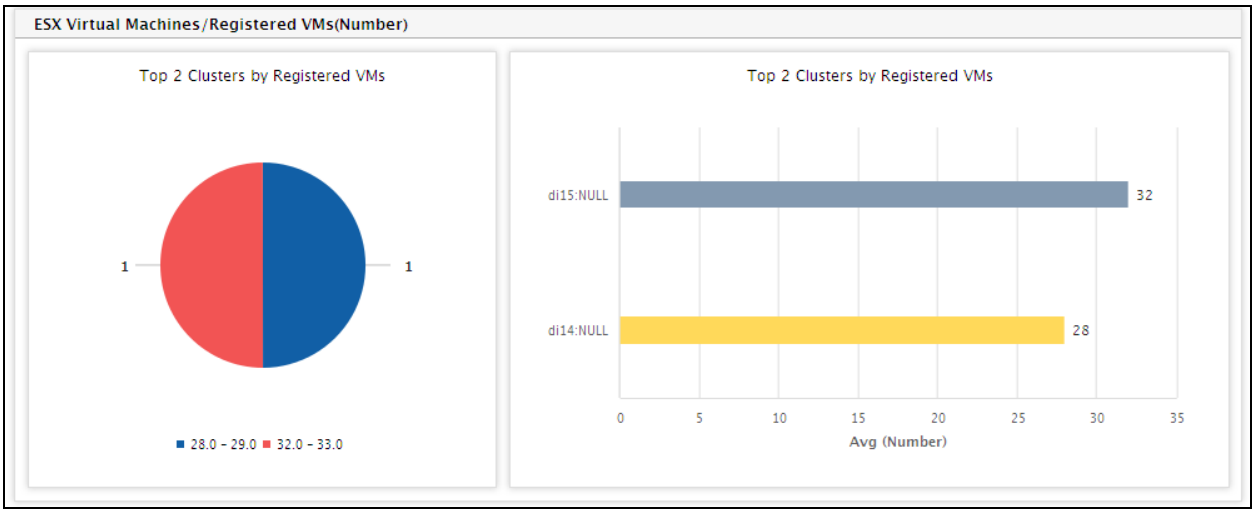


Figure 9.90: The Cluster - Resource pools report where the 'View by' selection is 'Distribution' and the 'Report by' selection is 'Physical Servers'

26. Figure 9.90 comprises of the following:

- A distribution pie chart that depicts the number of physical servers that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Registered guests* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Registered guests* - alone is calculated for every physical server in the chosen **Cluster**. The resulting pie chart enables administrators to deduce, at a glance, the number of physical servers where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the physical servers that fall within the value range represented by that slice (see Figure 9.91). Against every server, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A cluster-level **Summary** of the chosen **Measure** will also be available.

By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

Note

By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_CLUSTER]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

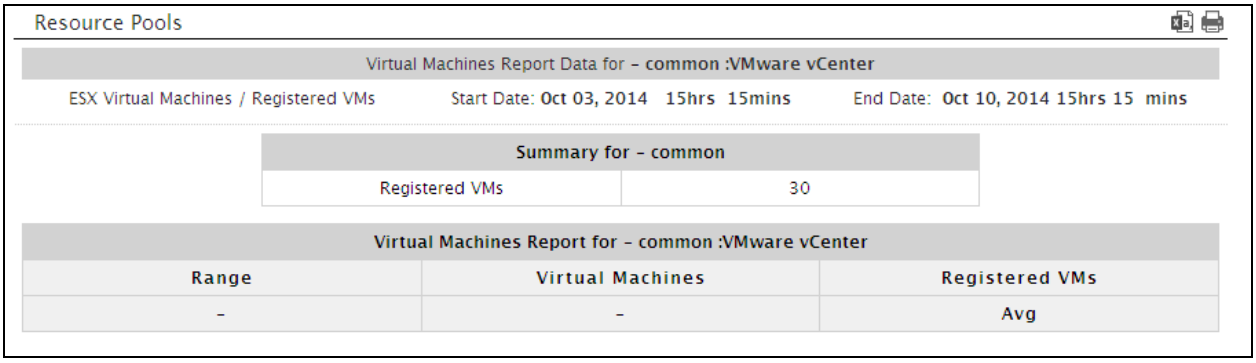


Figure 9.91: The physical servers that fall within the usage range clicked on

27. Adjacent to the pie chart, you will find a bar chart that indicates the physical servers that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Registered guests* measure, this bar chart reveals the physical servers in the cluster with which the maximum number of guests have registered. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_CLUSTER]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_CLUSTER]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, select **Top-N** from the **Filter by** list in Figure 9.84, and pick an option from the adjacent drop-down list.

28. Likewise, if the **Report Type** is **Graph**, the **View by** selection is **Distribution**, and the **Report for** option is **Virtual Machines**, then picking the **Foreground Generation - HTML** option from the **Report Generation** list and clicking the **Run Report** button will invoke Figure 9.92.

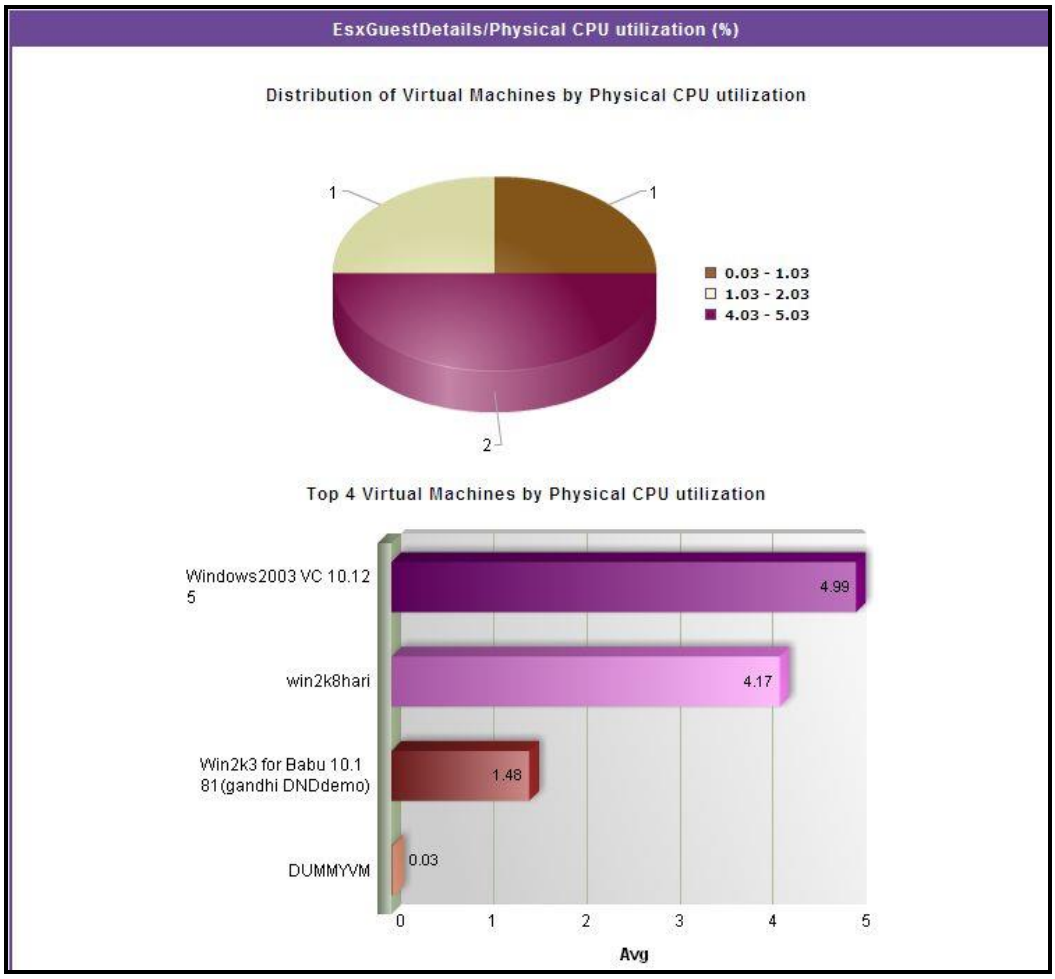


Figure 9.92: A Cluster - Resource pools report that appears when the 'View by' option is 'Distribution' and 'Report by' option is 'Virtual Machines'

29. Figure 9.92 reveals the following:

- A distribution pie chart that depicts the number of virtual machines that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Physical CPU utilization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Physical CPU utilization* - alone is calculated for every virtual machine configured on each physical server in the chosen **Cluster**. The resulting pie chart enables administrators to deduce, at a glance, the number of virtual machines where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the VMs that fall within the value range represented by that slice (see Figure 9.93). Against every server, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A cluster-level **Summary** of the chosen **Measure** will also be available.

➢ By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

Note

➢ By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_CLUSTER]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

REPORTER DATA

Cluster Details Data for - :vCenter125 : VMware vCenter		
EsxGuestDetails / Physical CPU utilization	Start Date:Jun 14, 2010 20Hrs 35Mins	End Date:Jun 16, 2010 20Hrs 35Mins

Summary for - vCenter125

Cluster Details Report for - vCenter125 :VMware vCenter		
Range	Virtual Machines	Physical CPU utilization
-	-	Avg
4.03-5.03	Windows2003 VC 10.125	4.99
4.03-5.03	win2k8hari	4.17

Figure 9.93: The virtual machines that fall within the usage range clicked on

30. Adjcacent to the pie chart, you will find a bar chart that indicates the VMs that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Physical CPU utilization* measure, this bar chart reveals the VMs in the cluster that are using CPU excessively. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

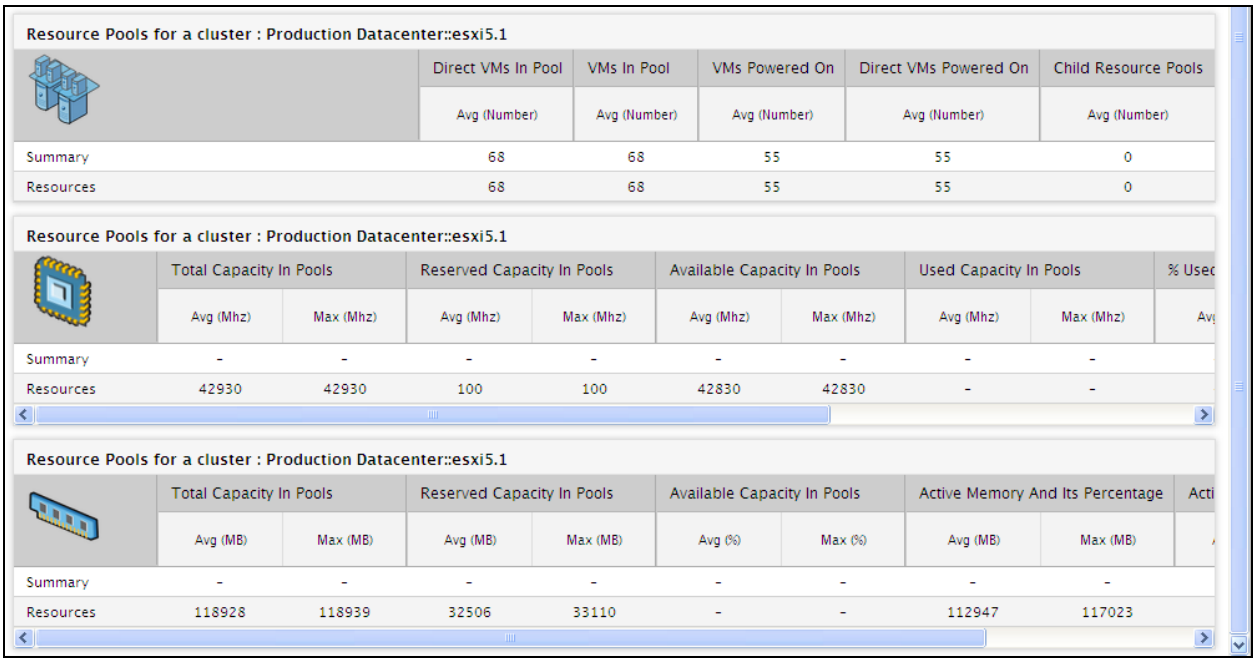
You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_CLUSTER]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_CLUSTER]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, select **Top-N** from the **Filter by** list in Figure 9.84, and pick an option from the adjacent drop-down list.

31. If the **Report Type** is **Data**, then the **View by** list will no longer appear. Also, the **Report by** section will now allow you to choose between the **Physical Servers** and the **Virtual Machines** options. Moreover, besides enabling you to view the data pertaining to all/specific clusters managed by a chosen vCenter server, the **Data** report will also enable you to view the data pertaining to all/specific **Resource Pools**.
32. If the **Report Type** is **Data** and neither the **Physical Servers** nor the **Virtual Machines** check box is selected from **Report by**, then, clicking the **Run Report** button will reveal Figure 9.94.



Resource Pools for a cluster : Production Datacenter::esxi5.1

	Direct VMs In Pool	VMs In Pool	VMs Powered On	Direct VMs Powered On	Child Resource Pools
	Avg (Number)	Avg (Number)	Avg (Number)	Avg (Number)	Avg (Number)
Summary	68	68	55	55	0
Resources	68	68	55	55	0

Resource Pools for a cluster : Production Datacenter::esxi5.1

	Total Capacity In Pools		Reserved Capacity In Pools		Available Capacity In Pools		Used Capacity In Pools		% Used
	Avg (Mhz)	Max (Mhz)	Avg (Mhz)	Max (Mhz)	Avg (Mhz)	Max (Mhz)	Avg (Mhz)	Max (Mhz)	Avg
Summary	-	-	-	-	-	-	-	-	
Resources	42930	42930	100	100	42830	42830	-	-	

Resource Pools for a cluster : Production Datacenter::esxi5.1

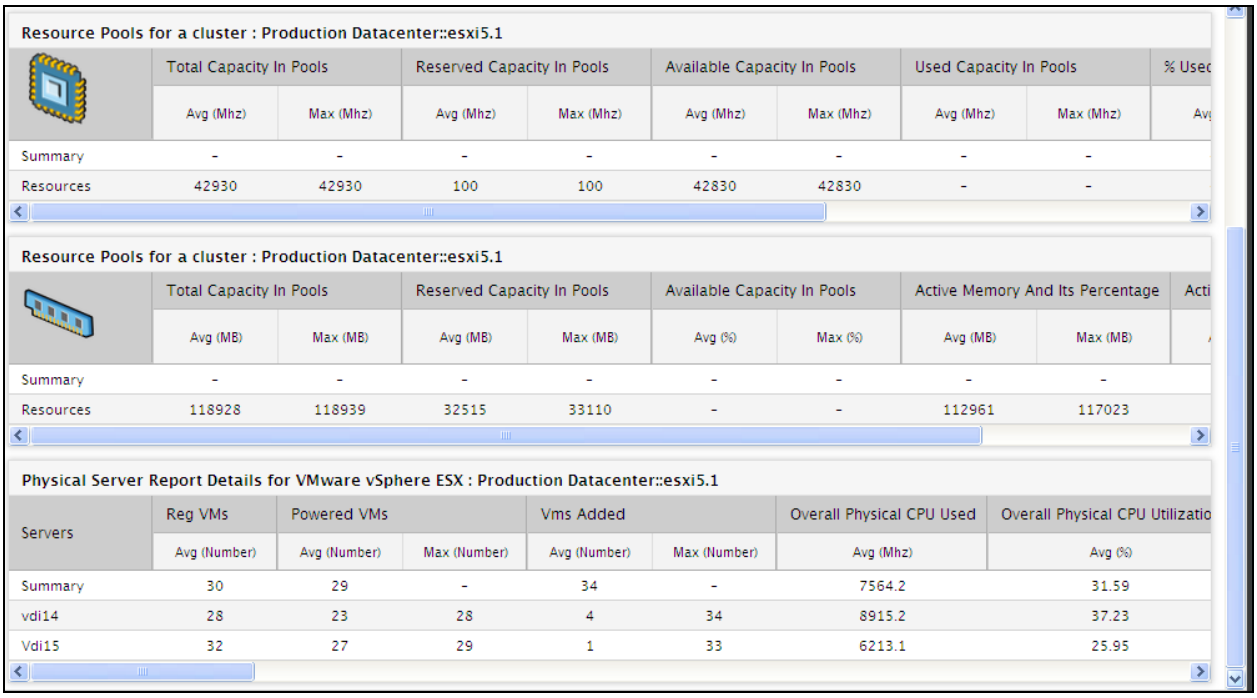
	Total Capacity In Pools		Reserved Capacity In Pools		Available Capacity In Pools		Active Memory And Its Percentage		Acti
	Avg (MB)	Max (MB)	Avg (MB)	Max (MB)	Avg (%)	Max (%)	Avg (MB)	Max (MB)	
Summary	-	-	-	-	-	-	-	-	
Resources	118928	118939	32506	33110	-	-	112947	117023	

Figure 9.94: The Cluster Details Data Report

33. For a particular cluster, Figure 9.94 provides separate sections displaying the user-configured metrics related to the CPU and memory usage of the chosen/all resource pools (depending upon the option chosen from the **Resource pool** list) in that cluster. This way, you can analyze cluster performance over time, and identify the resource-intensive pools in the cluster that are adversely impacting the overall cluster health.

34. Besides metrics, users can also configure the functions that they want applied on the metrics, so that they receive the true picture of the performance of the cluster. The number of values displayed per measure in the report will depend upon the number of functions that the user has configured for the measure.

35. If the **Physical Servers** check box alone is selected from **Report by**, then, Figure 9.95 will appear upon clicking the **Run Report** button. As you can see, in addition to the default sections focusing on CPU and memory usage, Figure 9.95 provides a **Physical Server Report Details** section that provides an overview of the performance of all ESX servers that are part of the chosen cluster. Using this information, you can figure out whether any of the ESX servers have contributed to any deterioration in the performance of the cluster.



Resource Pools for a cluster : Production Datacenter::esxi5.1

	Total Capacity In Pools		Reserved Capacity In Pools		Available Capacity In Pools		Used Capacity In Pools		% Usec
	Avg (Mhz)	Max (Mhz)	Avg (Mhz)	Max (Mhz)	Avg (Mhz)	Max (Mhz)	Avg (Mhz)	Max (Mhz)	Av
Summary	-	-	-	-	-	-	-	-	
Resources	42930	42930	100	100	42830	42830	-	-	

Resource Pools for a cluster : Production Datacenter::esxi5.1

	Total Capacity In Pools		Reserved Capacity In Pools		Available Capacity In Pools		Active Memory And Its Percentage		Acti
	Avg (MB)	Max (MB)	Avg (MB)	Max (MB)	Avg (%)	Max (%)	Avg (MB)	Max (MB)	
Summary	-	-	-	-	-	-	-	-	
Resources	118928	118939	32515	33110	-	-	112961	117023	

Physical Server Report Details for VMware vSphere ESX : Production Datacenter::esxi5.1

Servers	Reg VMs	Powered VMs		Vms Added		Overall Physical CPU Used	Overall Physical CPU Utilizatio
	Avg (Number)	Avg (Number)	Max (Number)	Avg (Number)	Max (Number)	Avg (Mhz)	Avg (%)
Summary	30	29	-	34	-	7564.2	31.59
vdi14	28	23	28	4	34	8915.2	37.23
Vdi15	32	27	29	1	33	6213.1	25.95

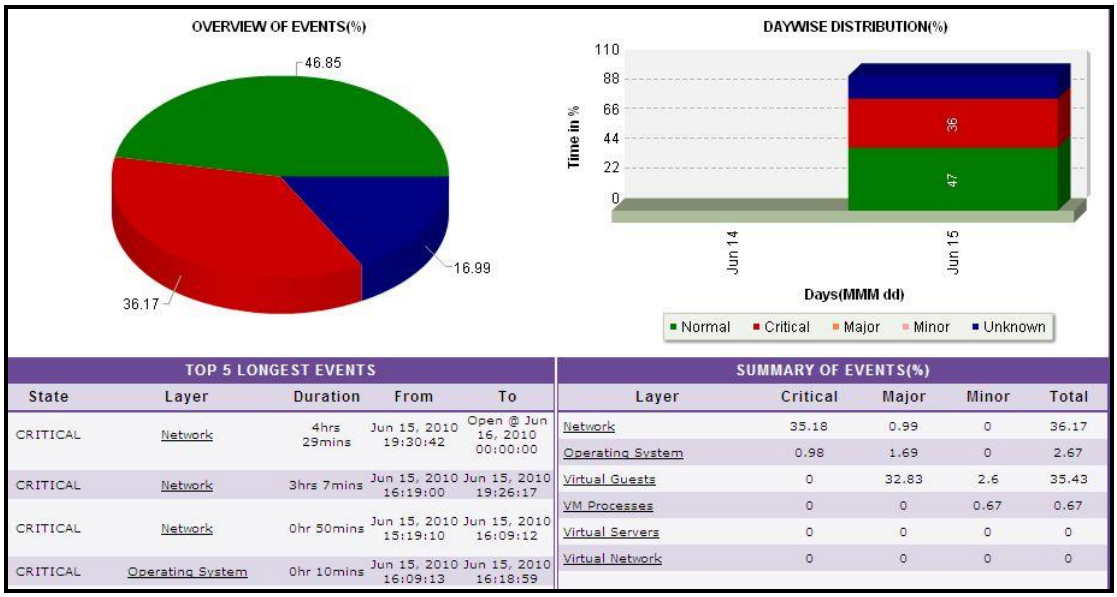
Figure 9.95: A Cluster Details Report providing Physical Server information additionally

36. Clicking on a **Physical Server** link in this section will lead you to a **Server Report** that zooms into the performance of the physical server that was clicked.

37. This **Physical Server Report** section of Figure 9.95 will also provide you with a quick **Summary** of the performance of the cluster across its physical servers.

38. The **Health %** that corresponds to every physical server included in a cluster is a good indicator of how problem-prone that physical server was during the given period. Clicking on this percentage leads you to an Executive Report of that physical server, using which you can determine the type of problems that were encountered by that server during the said period, which layers were frequently affected and on what days (see Figure 9.96).

39. The **Heath %** for the **Summary** row on the other hand signifies the overall health of the cluster.



TOP 5 LONGEST EVENTS

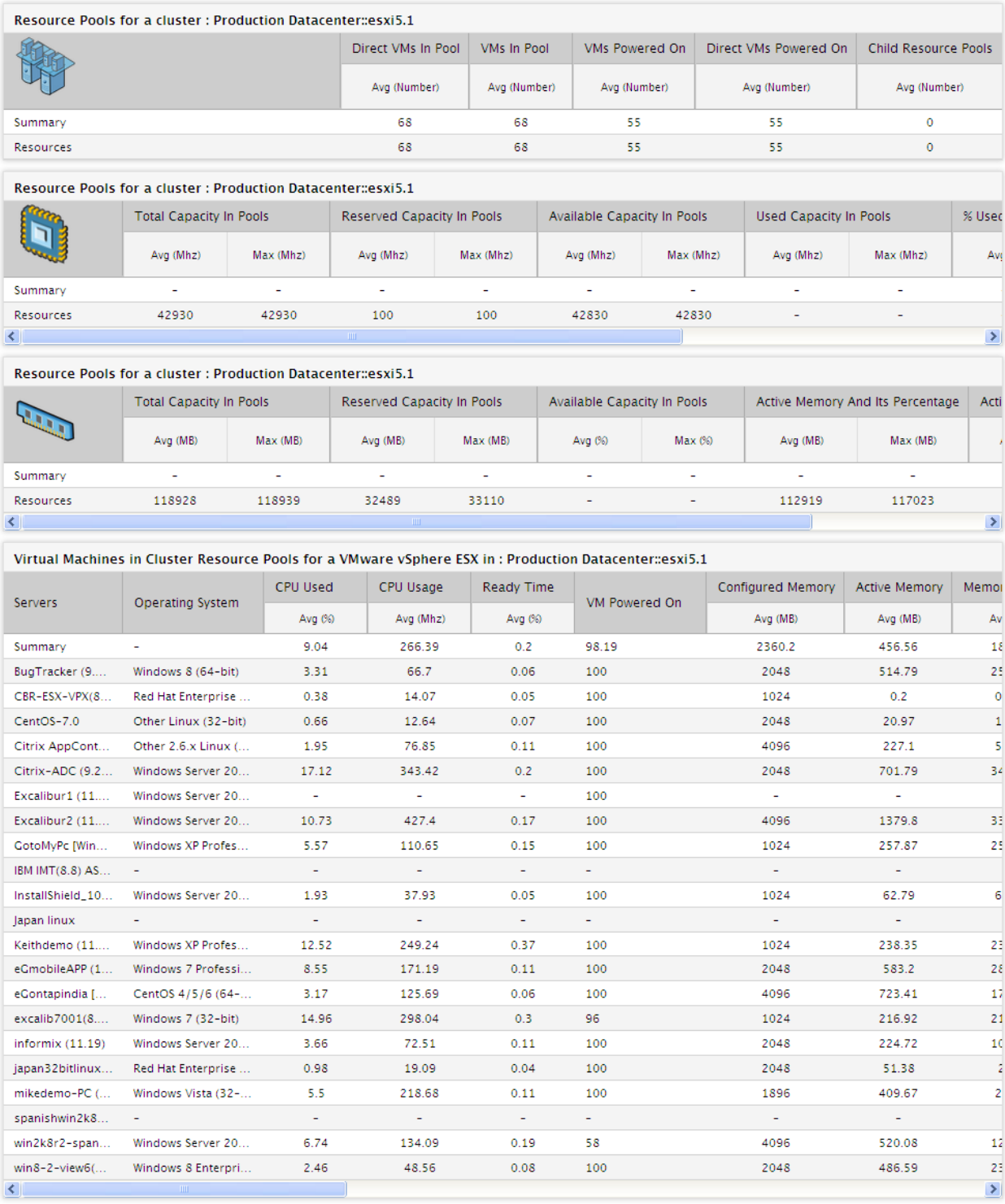
State	Layer	Duration	From	To
CRITICAL	Network	4hrs 29mins	Jun 15, 2010 19:30:42	Open @ Jun 16, 2010 00:00:00
CRITICAL	Network	3hrs 7mins	Jun 15, 2010 16:19:00	Jun 15, 2010 19:26:17
CRITICAL	Network	0hr 50mins	Jun 15, 2010 15:19:10	Jun 15, 2010 16:09:12
CRITICAL	Operating System	0hr 10mins	Jun 15, 2010 16:09:13	Jun 15, 2010 16:18:59

SUMMARY OF EVENTS(%)

Layer	Critical	Major	Minor	Total
Network	35.18	0.99	0	36.17
Operating System	0.98	1.69	0	2.67
Virtual Guests	0	32.83	2.6	35.43
VM Processes	0	0	0.67	0.67
Virtual Servers	0	0	0	0
Virtual Network	0	0	0	0

Figure 9.96: An Executive Report of the physical server

40. If the **Virtual Machines** check box alone is selected from **Report by**, then, Figure 9.97 will appear upon clicking the **RUN REPORT BUTTON**. As you can see, in addition to the default sections focusing on CPU and memory usage, Figure 9.97 provides a **Virtual Machines** section that indicates how resource-intensive each VM in the cluster is. Using this information, you can figure out whether any of the VMs have contributed to any deterioration in the performance of the cluster.



Resource Pools for a cluster : Production Datacenter::esxi5.1

	Direct VMs In Pool	VMs In Pool	VMs Powered On	Direct VMs Powered On	Child Resource Pools
	Avg (Number)	Avg (Number)	Avg (Number)	Avg (Number)	Avg (Number)
Summary	68	68	55	55	0
Resources	68	68	55	55	0

Resource Pools for a cluster : Production Datacenter::esxi5.1

	Total Capacity In Pools		Reserved Capacity In Pools		Available Capacity In Pools		Used Capacity In Pools		% Used
	Avg (Mhz)	Max (Mhz)	Avg (Mhz)	Max (Mhz)	Avg (Mhz)	Max (Mhz)	Avg (Mhz)	Max (Mhz)	Avg
Summary	-	-	-	-	-	-	-	-	
Resources	42930	42930	100	100	42830	42830	-	-	

Resource Pools for a cluster : Production Datacenter::esxi5.1

	Total Capacity In Pools		Reserved Capacity In Pools		Available Capacity In Pools		Active Memory And Its Percentage		Acti
	Avg (MB)	Max (MB)	Avg (MB)	Max (MB)	Avg (%)	Max (%)	Avg (MB)	Max (MB)	
Summary	-	-	-	-	-	-	-	-	
Resources	118928	118939	32489	33110	-	-	112919	117023	

Virtual Machines in Cluster Resource Pools for a VMware vSphere ESX in : Production Datacenter::esxi5.1

Servers	Operating System	CPU Used	CPU Usage	Ready Time	VM Powered On	Configured Memory	Active Memory	Memo
		Avg (%)	Avg (Mhz)	Avg (%)		Avg (MB)	Avg (MB)	Av
Summary	-	9.04	266.39	0.2	98.19	2360.2	456.56	18
BugTracker (9....	Windows 8 (64-bit)	3.31	66.7	0.06	100	2048	514.79	25
CBR-ESX-VPX(8...	Red Hat Enterprise ...	0.38	14.07	0.05	100	1024	0.2	0
CentOS-7.0	Other Linux (32-bit)	0.66	12.64	0.07	100	2048	20.97	1
Citrix AppCont...	Other 2.6.x Linux (...	1.95	76.85	0.11	100	4096	227.1	5
Citrix-ADC (9.2...	Windows Server 20...	17.12	343.42	0.2	100	2048	701.79	34
Excalibur1 (11....	Windows Server 20...	-	-	-	100	-	-	
Excalibur2 (11....	Windows Server 20...	10.73	427.4	0.17	100	4096	1379.8	33
GotoMyPc [Win...	Windows XP Profes...	5.57	110.65	0.15	100	1024	257.87	25
IBM IMT(8.8) AS...	-	-	-	-	-	-	-	
InstallShield_10...	Windows Server 20...	1.93	37.93	0.05	100	1024	62.79	6
Japan linux	-	-	-	-	-	-	-	
Keithdemo (11....	Windows XP Profes...	12.52	249.24	0.37	100	1024	238.35	23
eGmobileAPP (1...	Windows 7 Professi...	8.55	171.19	0.11	100	2048	583.2	28
eGontapindia [...	CentOS 4/5/6 (64-...	3.17	125.69	0.06	100	4096	723.41	17
excalib7001(8....	Windows 7 (32-bit)	14.96	298.04	0.3	96	1024	216.92	21
informix (11.19)	Windows Server 20...	3.66	72.51	0.11	100	2048	224.72	10
japan32bitlinux...	Red Hat Enterprise ...	0.98	19.09	0.04	100	2048	51.38	2
mikedemo-PC (...	Windows Vista (32-...	5.5	218.68	0.11	100	1896	409.67	2
spanishwin2k8...	-	-	-	-	-	-	-	
win2k8r2-span...	Windows Server 20...	6.74	134.09	0.19	58	4096	520.08	12
win8-2-view6(...	Windows 8 Enterpri...	2.46	48.56	0.08	100	2048	486.59	23

Figure 9.97: A Cluster Details Report additionally providing virtual machine information

41. Clicking on a VM in this section will lead you to the **Virtual Machine Details** report of that VM.

42. If the **All** option had been chosen from the **Cluster** list in Figure 9.98, the resulting report will display CPU and memory usage metrics related to every cluster configured on the chosen **vCenter Server** (see Figure 9.98). If

both the **Physical Servers** and **Virtual Machines** check boxes are selected, then the report will also explore the resource usage of the ESX servers and VMs in all the clusters managed by the chosen **vCenter Server** (see Figure 9.98).

Cpu usage details for Cluster Resourcepool for a cluster : --All--

Resourcepools	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used	
	(Mhz)		(Mhz)		(Mhz)		(Mhz)		(Percent)		(Percent)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary -	1149.79	-	1783.3	-	15.48	-	3065.05	-	8.07	-	12.75	-
ESX 179->Datacenter 179::cluster 179 Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX102->102 DC::Cluster 102 Resources	1120.19	2444	3642.72	4792	0	0	3642.72	4792	11.69	25.5	20.01	43.66
ESX136->eG DC::cluster136 Resources	1981.76	4801	10623.68	11643	123.82	151	10499.86	11492	9.05	28.59	15.53	37.63
ESX136->eG DC::cluster136 Resources/Rp-136	347.43	698	0	0	0	0	10377.8	11492	3.47	7.09	2.72	5.47
ESX136->eG DC::sr1 Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr2 Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr Resources/sr	-	-	0	0	0	0	0	0	-	-	-	-

Memory usage details for Cluster Resourcepool for a cluster : --All--

Resourcepools	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Active memory used		Active memory	
	(MB)		(MB)		(MB)		(Percent)		(MB)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary -	954.44	-	1318.9	-	168.48	-	92.07	-	156.81	-
ESX 179->Datacenter 179::cluster 179 Resources	0	0	0	0	0	0	-	-	-	-
ESX102->102 DC::Cluster 102 Resources	301.44	1497	1137.97	1497	203.04	270.2	99.9	294.67	222.03	617.76
ESX136->eG DC::cluster136 Resources	5773.48	6216	9413.23	10332	918.26	1017	141.56	248.63	205.18	781.25
ESX136->eG DC::cluster136 Resources/Rp-136	1560.62	2007	0	0	226.51	307	34.76	74.43	43.21	135.85
ESX136->eG DC::sr1 Resources	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr2 Resources	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr Resources	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr Resources/sr	0	0	0	0	0	0	-	-	-	-

Virtual Machines in Cluster Resource Pools for a VMware vSphere ESX in : --All--

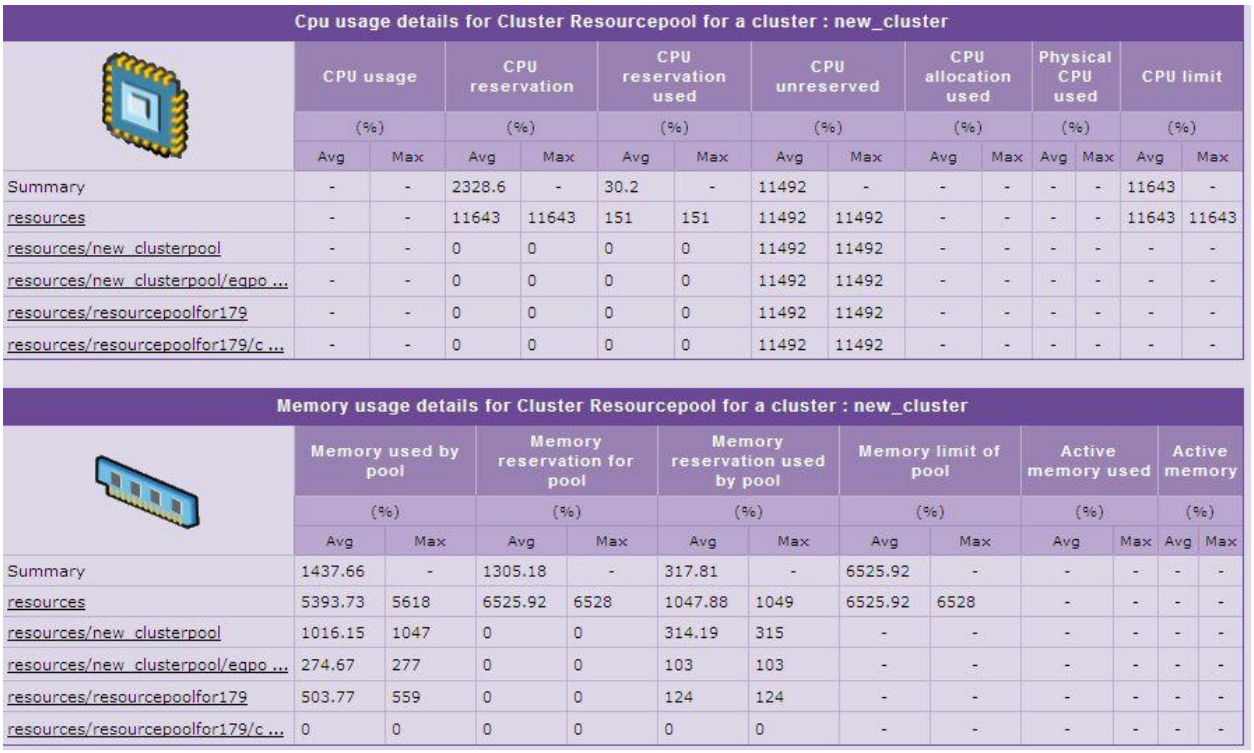
Operating System	CPU Used	CPU Usage	Ready Time	VM Powered On	Configured Memory	Active memory	Memory Usage	Disk Capacity	Disk Writes	Disk Reads	Network Traffic Out	Network Traffic In
	(%)	(Mhz)	(%)	(Percent)	(MB)	(MB)	(%)	(MB)	(MB/Sec)	(MB/Sec)	(Mbps)	(Mbps)
	Avg	Avg	Avg		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
Summary -	2.56	167.75	0.18	95	839.43	130.31	17.73	12753.45	0.11	0.03	0.02	0.07
LINel4-NarenTeam Linux	4.66	305.76	0.42	96	1046.62	63.21	6.04	9216	-	-	0.01	0.01
Naren testting DND -	-	-	-	-	-	-	-	18432	-	-	-	-
New Virtual Machine-SR -	-	-	-	-	-	-	-	8192	-	-	-	-
VMware Studio -	1.33	88.35	0.14	99	512.93	30.81	6.01	30720	0.11	0.02	0.02	0.04
eG Enterprise Suite Linux	6.66	428.29	0.28	99	1024.25	411.56	40.18	10240	0.21	0.02	0.05	0.19
eG Enterprise Suite- JV Linux	3.31	213.98	0.28	99	1024.58	236.39	23.08	10240	0.17	0.01	0.03	0.05
ifconfig -	0.72	49.46	0.32	99	1033.26	5.34	0.52	10240	0	0	0	0
vm2008 -	0.03	4.56	0	99	1388.44	0.6	0.04	8192	-	-	0	0
winsys-karthi Windows Server 2003	3.05	198.26	0.12	99	500	154	30.8	18432	-	-	0.02	0.08
xendesktopxpvc -	0.42	30.72	0.02	99	512.52	52.37	10.22	8192	0	0	0	0
xendesktopxpvc (10.153) -	2.9	190.35	0.06	66	512.24	218.52	42.67	8192	0.19	0.14	0.05	0.22

Physical Server Report Details for VMware vSphere ESX in the Cluster : --All--

Registered VMs	Powered On VMs		Consumed Memory	Free Memory	CPU Usage	Disk Usage	Disk Commands	Disk Command Aborts	Network Traffic Out	Network Traffic In	Network Usage	Health
(Number)	(Number)		(MB)	(%)	(%)	(%)	(Cmds/Sec)	(Aborts/sec)	(Mbps)	(Mbps)	(Mbps)	(%)
Avg	Avg	Max	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	
Summary 7.82	5.76	-	3314.19	46.01	13.41	97.86	39.22	0	0.61	0.49	1.11	3.86
Esxi_136 7.82	5.76	7	3314.19	46.01	13.41	97.86	39.22	0	0.61	0.49	1.11	3.11

Figure 9.98: The Cluster Details report revealing the CPU and memory usage of every cluster on a vCenter

43. To zoom into the performance of a particular cluster, just click on it. Figure 9.99 will then appear.



Cpu usage details for Cluster Resourcepool for a cluster : new_cluster

	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used		CPU limit	
	(%)		(%)		(%)		(%)		(%)		(%)		(%)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	-	-	2328.6	-	30.2	-	11492	-	-	-	-	-	11643	-
resources	-	-	11643	11643	151	151	11492	11492	-	-	-	-	11643	11643
resources/new_clusterpool	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-
resources/new_clusterpool/eqpo ...	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-
resources/resourcepoolfor179	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-
resources/resourcepoolfor179/c ...	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-

Memory usage details for Cluster Resourcepool for a cluster : new_cluster

	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Memory limit of pool		Active memory used		Active memory	
	(%)		(%)		(%)		(%)		(%)		(%)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	1437.66	-	1305.18	-	317.81	-	6525.92	-	-	-	-	-
resources	5393.73	5618	6525.92	6528	1047.88	1049	6525.92	6528	-	-	-	-
resources/new_clusterpool	1016.15	1047	0	0	314.19	315	-	-	-	-	-	-
resources/new_clusterpool/eqpo ...	274.67	277	0	0	103	103	-	-	-	-	-	-
resources/resourcepoolfor179	503.77	559	0	0	124	124	-	-	-	-	-	-
resources/resourcepoolfor179/c ...	0	0	0	0	0	0	-	-	-	-	-	-

Figure 9.99: A report displaying the details of a particular cluster

44. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the icon in that page.

9.15 Cluster - Physical Servers Report

While the **Cluster - Details** report enables you to identify resource-intensive clusters configured on a vCenter server, using the **Cluster - Physical Servers** report you can figure out which VM on which physical server in the cluster is responsible for the resource drain and why. In short, you can have the following questions answered with the help of this report:

- Which physical servers are part of a cluster, and how have they been using the resources available to the cluster? Is any physical server using up excessive resources?
- Are any VMs on the problem physical server consuming the allocated resources excessively?

To generate this report, do the following:

1. Select the **Physical Servers** option from the **vCenter Reports** node of the **REPORTS BY FUNCTION** tree.
2. Figure 9.100 will then appear.

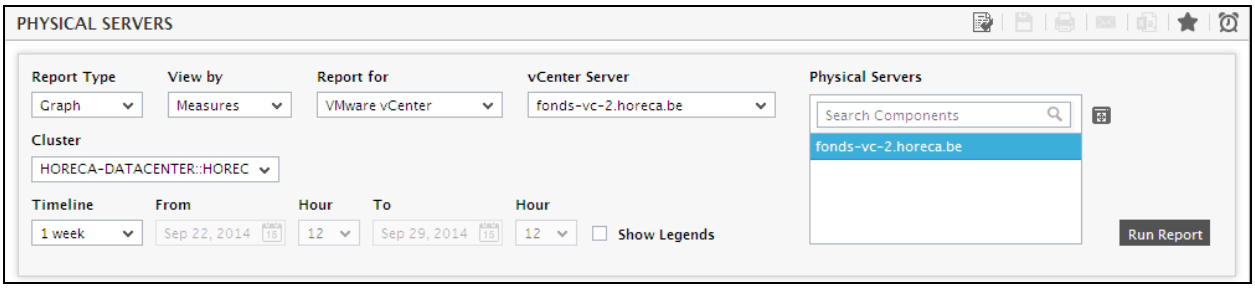


Figure 9.100: Providing the specifications of the Cluster - Physical Servers report

3. First, pick a **Report Type**. For a graphical representation of physical server performance, pick the **Graph** option. To view the metrics related to the resource usage of the physical servers in a cluster in a tabulated form, pick the **Data** option.
4. If the **Report Type** is **Graph**, then the **View by** list will offer 2 options - **Measures** and **Distribution**. While the **Measures** option will provide time-of-day measure graphs depicting physical server performance, the **Distribution** option will result in distribution pie charts and bar graphs being displayed.
5. By default, the **Report for** list will display **VMware vCenter** as its selection.
6. From the **vCenter Server** list, pick the vCenter server for which the report is to be generated.
7. Upon selecting the **vCenter Server**, the **Cluster** list will get automatically populated with those clusters that are being managed by the chosen **vCenter Server**. Pick a cluster for which this report is to be generated.
8. All the **Physical Servers** grouped under the chosen cluster will then be displayed in the **Physical Servers** list. From this list, choose the physical servers for which the report is to be generated. If this list consists of too many physical servers, then viewing all the servers and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Physical Servers** list. The **PHYSICAL SERVERS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
9. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

Note

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

10. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **RUN REPORT BUTTON** soon after you pick one/more **Physical Servers**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.101). The steps below discuss each of these settings and how they can be customized.

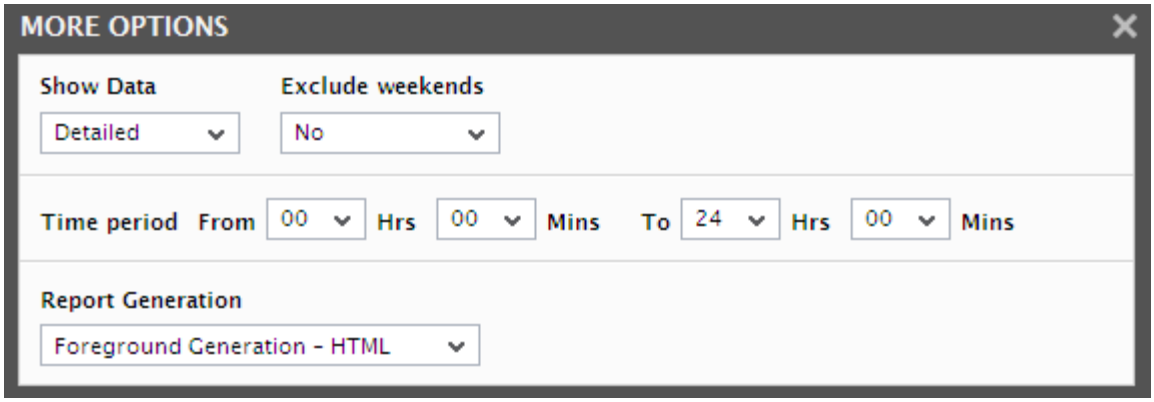


Figure 9.101: The default settings for generating the Cluster – Physical Servers report

11. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend**

information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.100. By default, the **Detailed** option is selected in Figure 9.100 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.7) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

---

12. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set

Exclude weekends to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_CLUSTER]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

---

13. Next, indicate the report **Timeperiod**.
14. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

---

15. Finally, click the **Run Report** button.

16. If the **Report Type** is **Graph**, the **View by** selection is **Measures**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking the **RUN REPORT BUTTON** will invoke Figure 9.102.

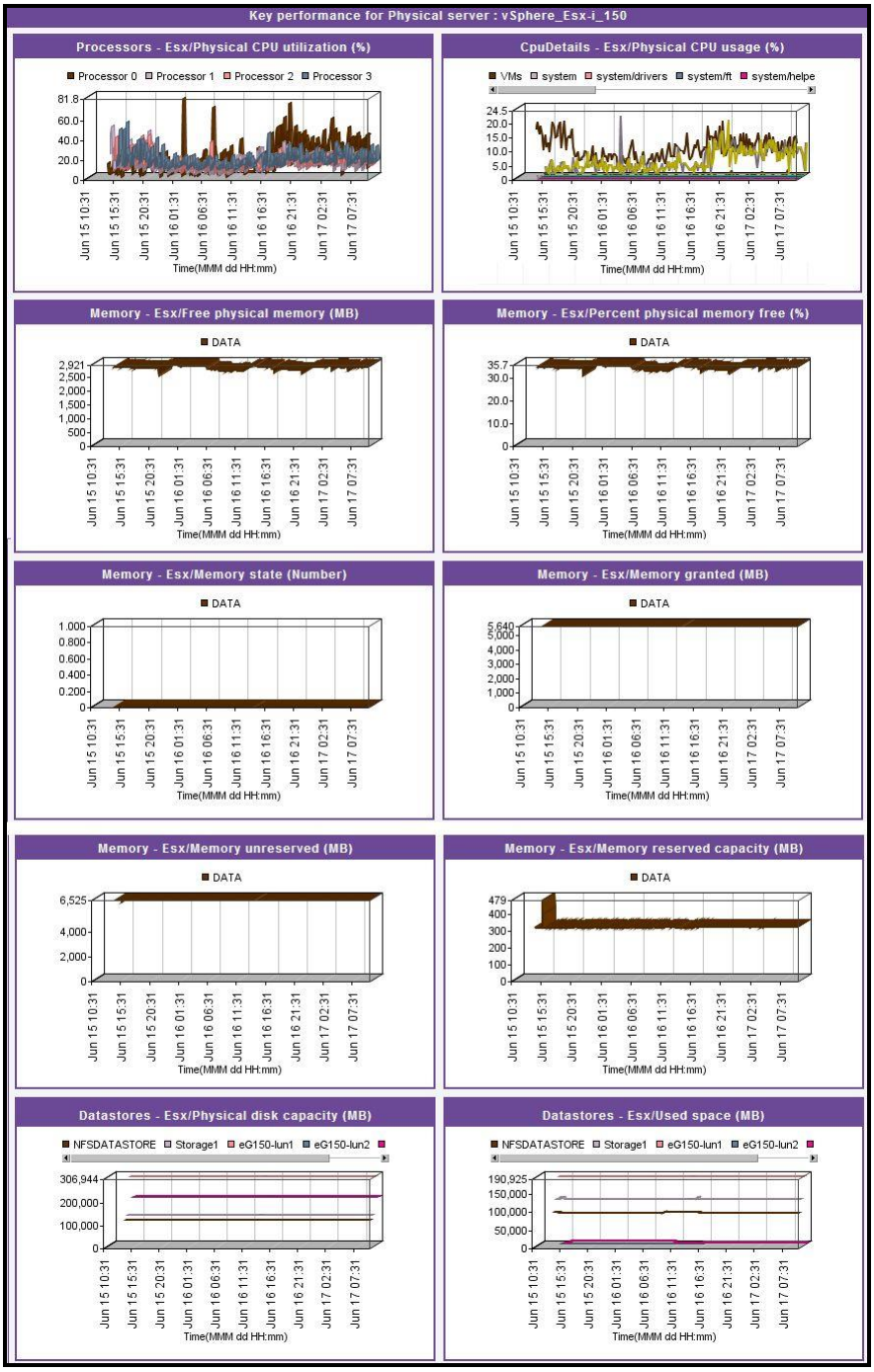

Key performance for Physical server : vSphere_Esx-i_150
Processors - Esx/Physical CPU utilization (%)
Processor 0 Processor 1 Processor 2 Processor 3
CpuDetails - Esx/Physical CPU usage (%)
VMs system system/drivers system/ft system/helpe
Memory - Esx/Free physical memory (MB)
Memory - Esx/Percent physical memory free (%)
Memory - Esx/Memory state (Number)
Memory - Esx/Memory granted (MB)
Memory - Esx/Memory unreserved (MB)
Memory - Esx/Memory reserved capacity (MB)
Datastores - Esx/Physical disk capacity (MB)
Datastores - Esx/Used space (MB)
NFSDATASTORE Storage1 eG150-lun1 eG150-lun2
DATA
Time(MMM dd HH:mm)

Figure 9.102: A Cluster - Physical Servers report if the 'View by' option chosen is 'Measures'

17. Figure 9.102, as you can see, displays a wide variety of time-of-day graphs, each of which plot the historical values of a pre-configured resource usage metric related to the chosen **Physical Servers** in a cluster. In the

event of excessive resource usage by a server, you can use this report to cross-correlate and time-correlate across the metrics to figure out when exactly and why the problem occurred.

18. If the **Report Type** is **Graph** and the **View by** selection is **Distribution**, and the **Report for** option is **Physical Servers**, you will be required to pick the **Measure** for which the distribution graphs are to be drawn. Once this is done, then picking the **Foreground Generation - HTML**option from the **Report Generation** list and clicking the **RUN REPORT BUTTON** will invoke Figure 9.103.

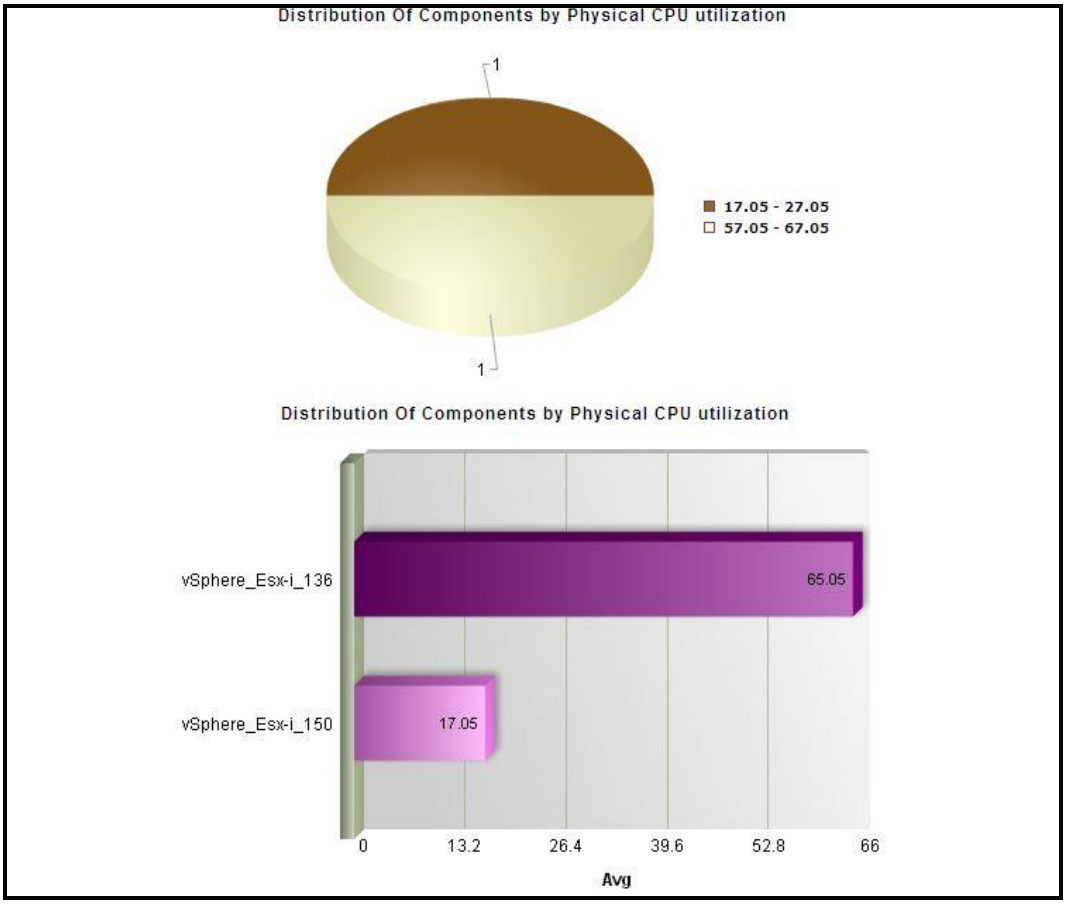


Figure 9.103: A Cluster - Physical Servers report that appears when the 'View by' option is 'Distribution'

19. Figure 9.103 comprises of the following:

- A distribution pie chart that depicts the number of physical servers that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Physical CPU utilization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Physical CPU utilization* - alone is calculated for every physical server in the chosen **Cluster**. The resulting pie chart enables administrators to deduce, at a glance, the number of physical servers where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the physical servers that fall within the value range represented by that slice (see Figure 9.104). Against every server, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A cluster-level **Summary** of the chosen **Measure** will also be available.

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:
  - Edit the eg_report.ini file in the <eg_install_dir>\manager\config directory.
  - Change the value of the chartTypeForDist parameter in the [virtual_CENTER] section of this file from the default Pie, to Bar.
  - Save the eg_report.ini file.

Note

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:
  - Edit the eg_report.ini file in the <eg_install_dir>\manager\config directory.
  - Specify a number of your choice against the nofRangeForDist parameter in the [virtual_cluster] section of this file. By default, this parameter will hold the value 10.
  - Save the eg_report.ini file.

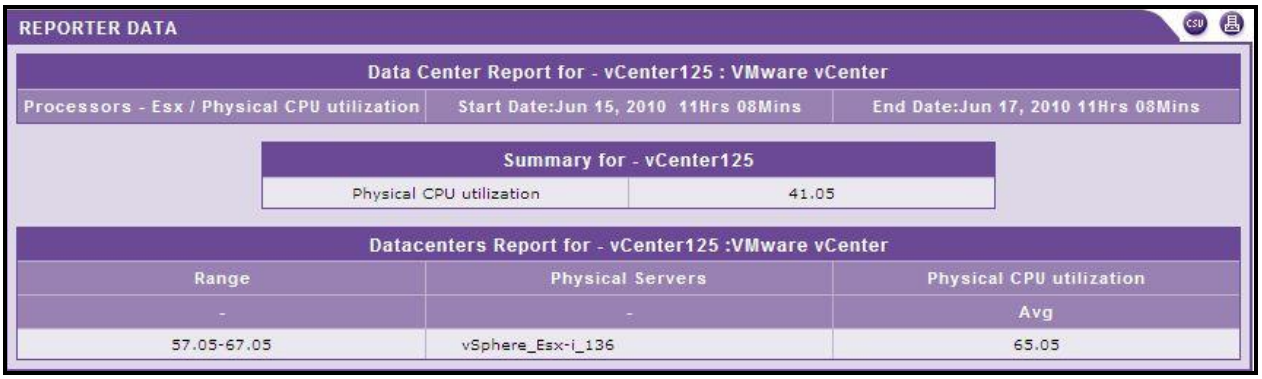


Figure 9.104: The physical servers that fall within the usage range clicked on

20. Adjacent to the pie chart, you will find a bar chart that indicates the physical servers that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Physical CPU utilization* measure, this bar chart reveals the physical servers in the cluster that are using CPU excessively. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_CLUSTER]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_CLUSTER]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, select **Top-N** from the **Filter by** list in Figure 9.101, and pick an option from the adjacent drop-down list.

21. Likewise, if the **Report Type** is **Graph**, the **View by** selection is **Distribution**, and the **Report for** option is **Virtual Machines**, you will be required to pick the **Measure** for which the distribution graphs are to be drawn. Once this is done, then picking the **Foreground Generation - HTML** option from the **Report Generation** list and clicking the **Run Report** button will invoke Figure 9.105.

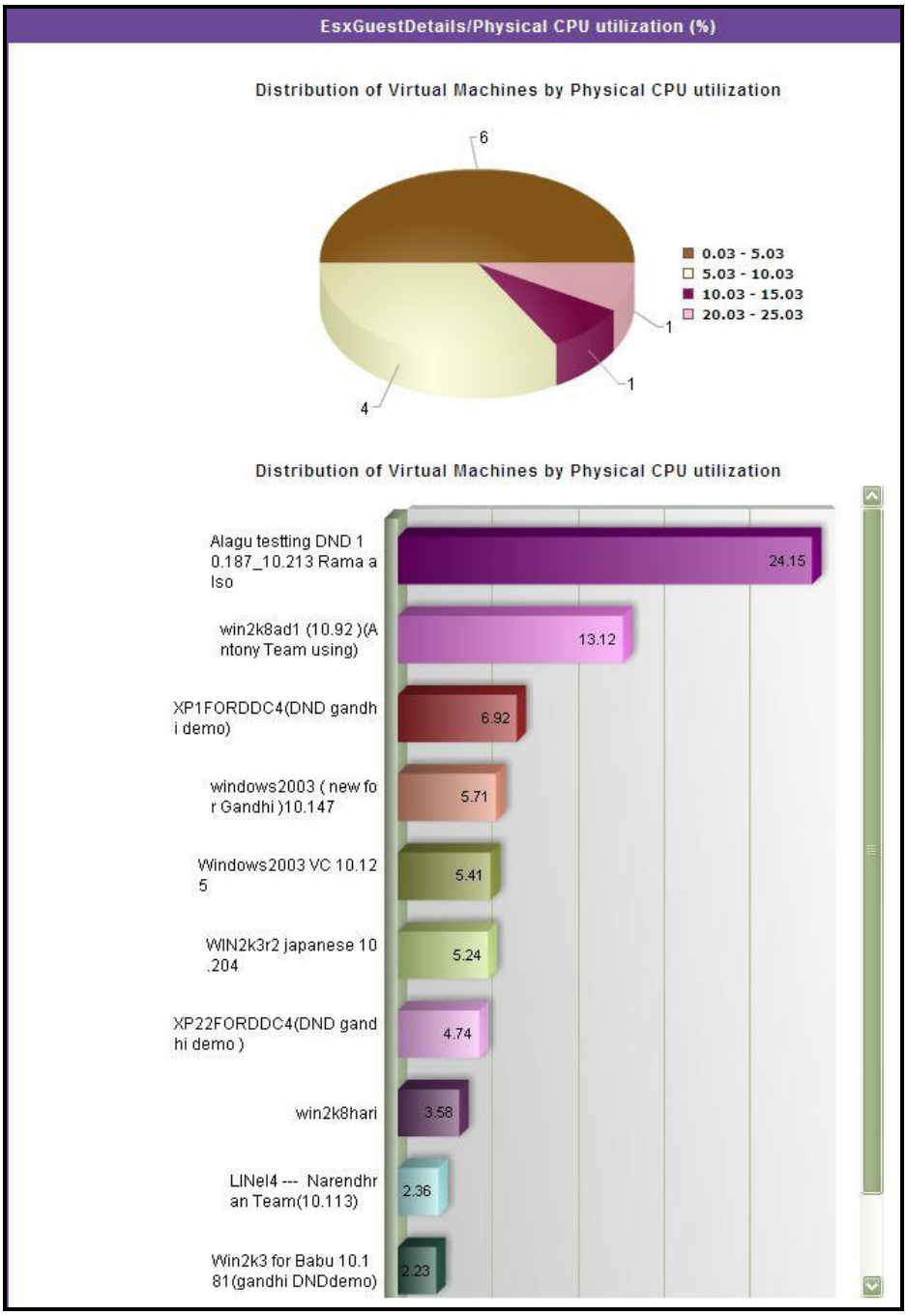


Figure 9.105: A Cluster - Physical Servers Report that appears when the 'View by' option is 'Distribution' and 'Report for' option is 'Virtual Machines'

22. Figure 9.105 reveals the following:

- A distribution pie chart that depicts the number of virtual machines that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Physical CPU utilization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two

functions - i.e., *Avg* of *Physical CPU utilization* - alone is calculated for every virtual machine configured on each physical server in the chosen **Cluster**. The resulting pie chart enables administrators to deduce, at a glance, the number of virtual machines where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the VMs that fall within the value range represented by that slice (see Figure 9.106). Against every server, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A cluster-level **Summary** of the chosen **Measure** will also be available.

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

Note

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_CLUSTER]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

REPORTER DATA

Data Center Report for - vCenter125 : VMware vCenter

EsxGuestDetails / Physical CPU utilization	Start Date:Jun 15, 2010 12Hrs 30Mins	End Date:Jun 17, 2010 12Hrs 30Mins

Summary for - vCenter125

Physical CPU utilization	6.18

Datacenters Report for - vCenter125 :VMware vCenter

Range	Virtual Machines	Physical CPU utilization
-	-	Avg
20.03-25.03	Alagu testting DND 10.187_10.213 Rama also	24.15

Figure 9.106: The physical servers that fall within the usage range clicked on

23. Adjacent to the pie chart, you will find a bar chart that indicates the VMs that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Physical CPU utilization* measure, this bar chart reveals the VMs in the cluster that are using CPU excessively. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the

chosen **Measure**.

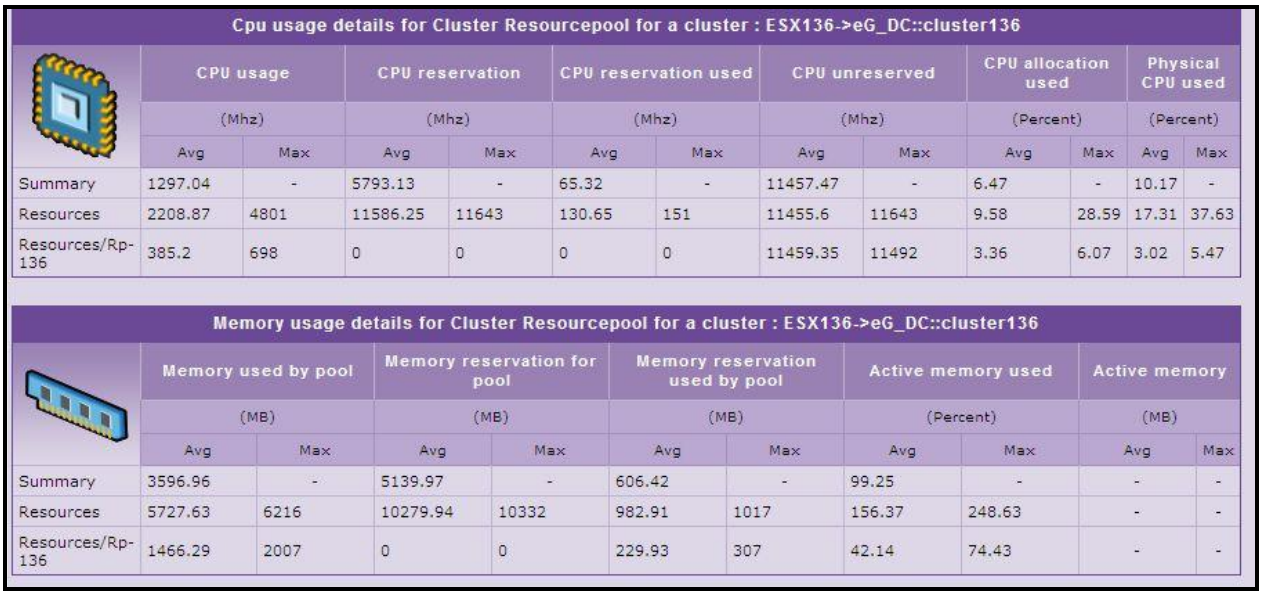
You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_CLUSTER]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_CLUSTER]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, select **Top-N** from the **Filter by** list in Figure 9.101, and pick an option from the adjacent drop-down list.

24. If the **Report Type** is **Data**, then the **View by** list will no longer appear. Also, the **Report by** section will now allow you to choose between the **Physical Servers** and the **Virtual Machines** options. Moreover, besides enabling you to view the data pertaining to all/specific clusters managed by a chosen vCenter server, the **Data** report will also enable you to view the data pertaining to all/specific **Resource Pools**.
25. If the **Report Type** is **Data** and neither the **Physical Servers** nor the **Virtual Machines** check box is selected from **Report by**, then, clicking the **Run Report** button will reveal Figure 9.107.



Cpu usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used	
	(Mhz)		(Mhz)		(Mhz)		(Mhz)		(Percent)		(Percent)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	1297.04	-	5793.13	-	65.32	-	11457.47	-	6.47	-	10.17	-
Resources	2208.87	4801	11586.25	11643	130.65	151	11455.6	11643	9.58	28.59	17.31	37.63
Resources/Rp-136	385.2	698	0	0	0	0	11459.35	11492	3.36	6.07	3.02	5.47

Memory usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

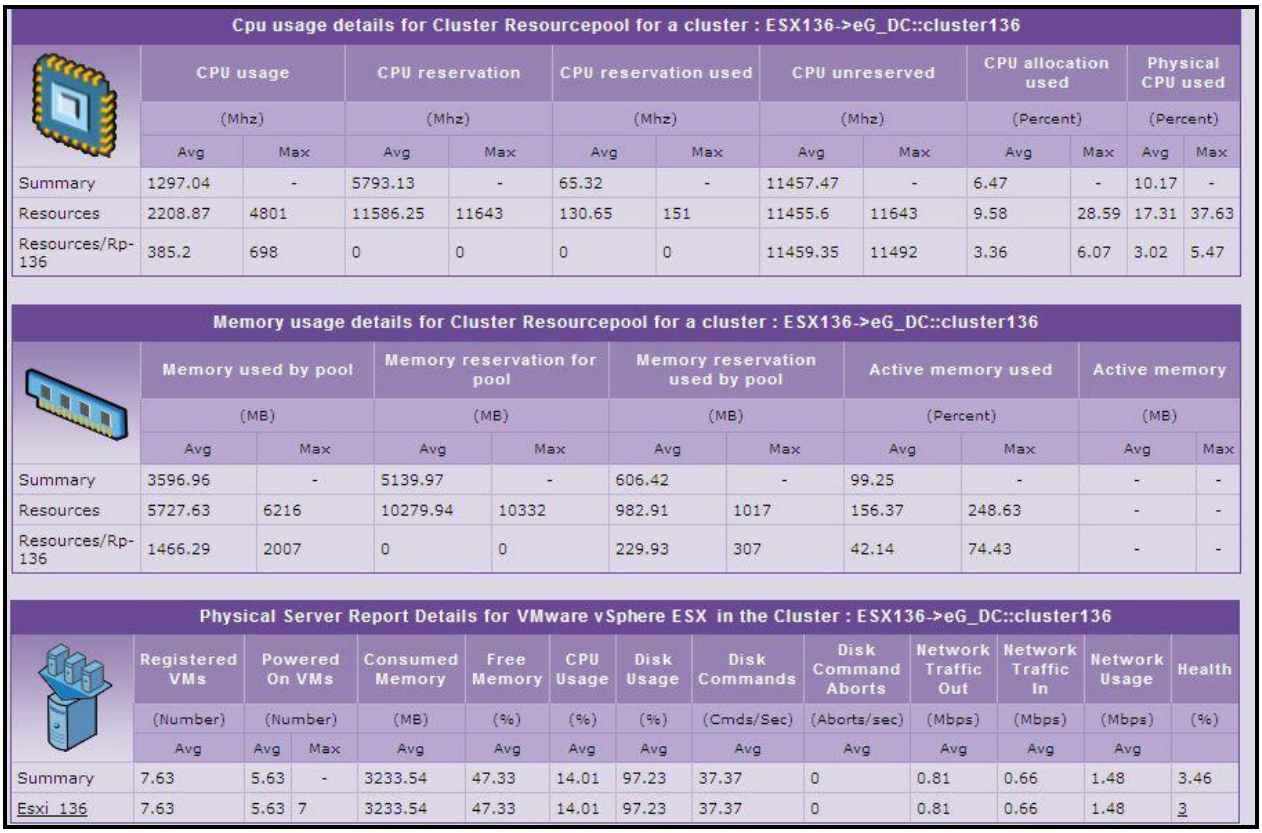
	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Active memory used		Active memory	
	(MB)		(MB)		(MB)		(Percent)		(MB)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	3596.96	-	5139.97	-	606.42	-	99.25	-	-	-
Resources	5727.63	6216	10279.94	10332	982.91	1017	156.37	248.63	-	-
Resources/Rp-136	1466.29	2007	0	0	229.93	307	42.14	74.43	-	-

Figure 9.107: The Cluster Details Data Report

26. For a particular cluster, Figure 9.107 provides separate sections displaying the user-configured metrics related to the CPU and memory usage of the chosen/all resource pools (depending upon the option chosen from the **Resource pool** list) in that cluster. This way, you can analyze cluster performance over time, and identify the resource-intensive pools in the cluster that are adversely impacting the overall cluster health.

27. Besides metrics, users can also configure the functions that they want applied on the metrics, so that they receive the true picture of the performance of the cluster. The number of values displayed per measure in the report will depend upon the number of functions that the user has configured for the measure.

28. If the **Physical Servers** check box alone is selected from **Report by**, then, Figure 9.108 will appear upon clicking the **Run Report** button. As you can see, in addition to the default sections focusing on CPU and memory usage, Figure 9.108 provides a **Physical Server Report Details** section that provides an overview of the performance of all ESX servers that are part of the chosen cluster. Using this information, you can figure out whether any of the ESX servers have contributed to any deterioration in the performance of the cluster.



Cpu usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used	
	(Mhz)		(Mhz)		(Mhz)		(Mhz)		(Percent)		(Percent)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	1297.04	-	5793.13	-	65.32	-	11457.47	-	6.47	-	10.17	-
Resources	2208.87	4801	11586.25	11643	130.65	151	11455.6	11643	9.58	28.59	17.31	37.63
Resources/Rp-136	385.2	698	0	0	0	0	11459.35	11492	3.36	6.07	3.02	5.47

Memory usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Active memory used		Active memory	
	(MB)		(MB)		(MB)		(Percent)		(MB)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	3596.96	-	5139.97	-	606.42	-	99.25	-	-	-
Resources	5727.63	6216	10279.94	10332	982.91	1017	156.37	248.63	-	-
Resources/Rp-136	1466.29	2007	0	0	229.93	307	42.14	74.43	-	-

Physical Server Report Details for VMware vSphere ESX in the Cluster : ESX136->eG_DC::cluster136

	Registered VMs	Powered On VMs		Consumed Memory	Free Memory	CPU Usage	Disk Usage	Disk Commands	Disk Command Aborts	Network Traffic Out	Network Traffic In	Network Usage	Health
	(Number)	(Number)		(MB)	(%)	(%)	(%)	(Cmds/Sec)	(Aborts/sec)	(Mbps)	(Mbps)	(Mbps)	(%)
	Avg	Avg	Max	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	
Summary	7.63	5.63	-	3233.54	47.33	14.01	97.23	37.37	0	0.81	0.66	1.48	3.46
Esxi_136	7.63	5.63	7	3233.54	47.33	14.01	97.23	37.37	0	0.81	0.66	1.48	3

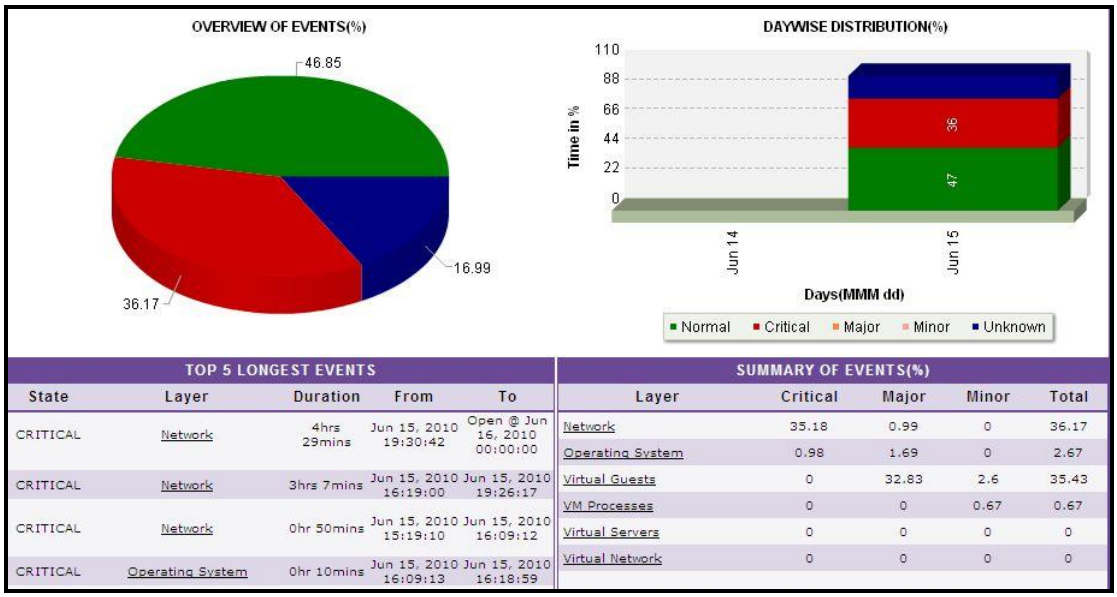
Figure 9.108: A Cluster Details Report providing Physical Server information additionally

29. Clicking on a **Physical Server** link in this section will lead you to a **Server Report** that zooms into the performance of the physical server that was clicked.

30. This **Physical Server Report** section of Figure 9.108 will also provide you with a quick **Summary** of the performance of the cluster across its physical servers.

31. The **Health %** that corresponds to every physical server included in a cluster is a good indicator of how problem-prone that physical server was during the given period. Clicking on this percentage leads you to an Executive Report of that physical server, using which you can determine the type of problems that were encountered by that server during the said period, which layers were frequently affected and on what days (see Figure 9.109).

32. The **Heath %** for the **Summary** row on the other hand signifies the overall health of the cluster.



TOP 5 LONGEST EVENTS

State	Layer	Duration	From	To
CRITICAL	Network	4hrs 29mins	Jun 15, 2010 19:30:42	Open @ Jun 16, 2010 00:00:00
CRITICAL	Network	3hrs 7mins	Jun 15, 2010 16:19:00	Jun 15, 2010 19:26:17
CRITICAL	Network	0hr 50mins	Jun 15, 2010 15:19:10	Jun 15, 2010 16:09:12
CRITICAL	Operating System	0hr 10mins	Jun 15, 2010 16:09:13	Jun 15, 2010 16:18:59

SUMMARY OF EVENTS(%)

Layer	Critical	Major	Minor	Total
Network	35.18	0.99	0	36.17
Operating System	0.98	1.69	0	2.67
Virtual Guests	0	32.83	2.6	35.43
VM Processes	0	0	0.67	0.67
Virtual Servers	0	0	0	0
Virtual Network	0	0	0	0

Figure 9.109: An Executive Report of the physical server

33. If the **Virtual Machines** check box alone is selected from **Report by**, then, Figure 9.110 will appear upon clicking the **RUN REPORT BUTTON**. As you can see, in addition to the default sections focusing on CPU and memory usage, Figure 9.110 provides a **Virtual Machines** section that indicates how resource-intensive each VM in the cluster is. Using this information, you can figure out whether any of the VMs have contributed to any deterioration in the performance of the cluster.

Cpu usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used	
	(Mhz)		(Mhz)		(Mhz)		(Mhz)		(Percent)		(Percent)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	1297.04	-	5793.13	-	65.32	-	11457.47	-	6.47	-	10.17	-
Resources	2208.87	4801	11586.25	11643	130.65	151	11455.6	11643	9.58	28.59	17.31	37.63
Resources/Rp-136	385.2	698	0	0	0	0	11459.35	11492	3.36	6.07	3.02	5.47

Memory usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Active memory used		Active memory	
	(MB)		(MB)		(MB)		(Percent)		(MB)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	3596.96	-	5139.97	-	606.42	-	99.25	-	-	-
Resources	5727.63	6216	10279.94	10332	982.91	1017	156.37	248.63	-	-
Resources/Rp-136	1466.29	2007	0	0	229.93	307	42.14	74.43	-	-

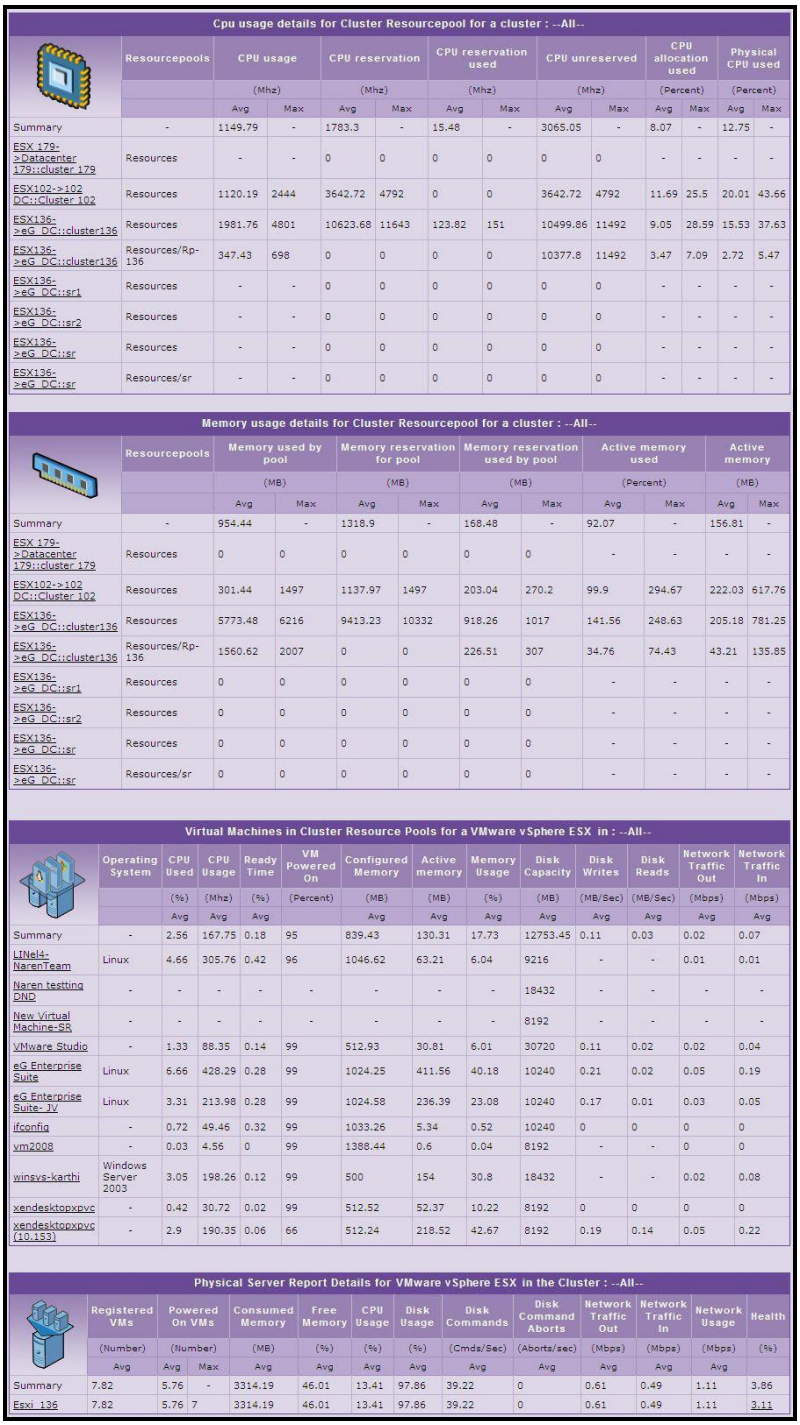
Virtual Machines in Cluster Resource Pools for a VMware vSphere ESX in : ESX136->eG_DC::cluster136

	Operating System	CPU Used	CPU Usage	Ready Time	VM Powered On	Configured Memory	Active memory	Memory Usage	Disk Capacity	Disk Writes	Disk Reads	Network Traffic Out	Network Traffic In
		(%)	(Mhz)	(%)	(Percent)	(MB)	(MB)	(%)	(MB)	(MB/Sec)	(MB/Sec)	(Mbps)	(Mbps)
		Avg	Avg	Avg		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
Summary	-	2.55	166.99	0.2	98.62	880.34	119.24	14.69	13209.6	0.1	0.02	0.02	0.06
LINel4-NarenTeam	Linux	4.66	305.76	0.42	96	1046.62	63.21	6.04	9216	-	-	0.01	0.01
Naren testting DND	-	-	-	-	-	-	-	-	18432	-	-	-	-
New Virtual Machine-SR	-	-	-	-	-	-	-	-	8192	-	-	-	-
VMware Studio	-	1.39	91.88	0.14	99	512.91	39.48	7.7	30720	0.14	0.07	0.06	0.13
eG Enterprise Suite	Linux	6.45	414.93	0.27	99	1024.39	369.94	36.12	10240	0.2	0.02	0.05	0.16
eG Enterprise Suite- JV	Linux	3.49	226.01	0.29	99	1024.47	270.41	26.4	10240	0.17	0.01	0.03	0.06
ifconfig	-	0.72	49.52	0.34	99	1033.28	5.29	0.51	10240	0	0	0	0
vm2008	-	0.03	4.56	0	99	1388.44	0.79	0.06	8192	-	-	0	0

Figure 9.110: A Cluster Details Report additionally providing virtual machine information

34. Clicking on a VM in this section will lead you to the **Virtual Machine Details** report of that VM.

35. If the **All** option had been chosen from the **Cluster** list in Figure 9.111, the resulting report will display CPU and memory usage metrics related to every cluster configured on the chosen **vCenter Server** (see Figure 9.111). If both the **Physical Servers** and **Virtual Machines** check boxes are selected, then the report will also explore the resource usage of the ESX servers and VMs in all the clusters managed by the chosen **vCenter Server** (see Figure 9.111).



Cpu usage details for Cluster Resourcepool for a cluster : --All--

Resourcepools	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used	
	(Mhz)		(Mhz)		(Mhz)		(Mhz)		(Percent)		(Percent)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary -	1149.79	-	1783.3	-	15.48	-	3065.05	-	8.07	-	12.75	-
ESX 179->Datacenter 179::cluster 179 Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX102->102 DC::Cluster 102 Resources	1120.19	2444	3642.72	4792	0	0	3642.72	4792	11.69	25.5	20.01	43.66
ESX136->eG_DC::cluster136 Resources	1981.76	4801	10623.68	11643	123.82	151	10499.86	11492	9.05	28.59	15.53	37.63
ESX136->eG_DC::cluster136 Resources/Rp-136	347.43	698	0	0	0	0	10377.8	11492	3.47	7.09	2.72	5.47
ESX136->eG_DC::sr1 Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX136->eG_DC::sr2 Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX136->eG_DC::sr Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX136->eG_DC::sr Resources/sr	-	-	0	0	0	0	0	0	-	-	-	-

Memory usage details for Cluster Resourcepool for a cluster : --All--

Resourcepools	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Active memory used		Active memory	
	(MB)		(MB)		(MB)		(Percent)		(MB)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary -	954.44	-	1318.9	-	168.48	-	92.07	-	156.81	-
ESX 179->Datacenter 179::cluster 179 Resources	0	0	0	0	0	0	-	-	-	-
ESX102->102 DC::Cluster 102 Resources	301.44	1497	1137.97	1497	203.04	270.2	99.9	294.67	222.03	617.76
ESX136->eG_DC::cluster136 Resources	5773.48	6216	9413.23	10332	918.26	1017	141.56	248.63	205.18	781.25
ESX136->eG_DC::cluster136 Resources/Rp-136	1560.62	2007	0	0	226.51	307	34.76	74.43	43.21	135.85
ESX136->eG_DC::sr1 Resources	0	0	0	0	0	0	-	-	-	-
ESX136->eG_DC::sr2 Resources	0	0	0	0	0	0	-	-	-	-
ESX136->eG_DC::sr Resources	0	0	0	0	0	0	-	-	-	-
ESX136->eG_DC::sr Resources/sr	0	0	0	0	0	0	-	-	-	-

Virtual Machines in Cluster Resource Pools for a VMware vSphere ESX in : --All--

Operating System	CPU Used	CPU Usage	Ready Time	VM Powered On	Configured Memory	Active memory	Memory Usage	Disk Capacity	Disk Writes	Disk Reads	Network Traffic Out	Network Traffic In
	(%)	(Mhz)	(%)	(Percent)	(MB)	(MB)	(%)	(MB)	(MB/Sec)	(MB/Sec)	(Mbps)	(Mbps)
	Avg	Avg	Avg		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
Summary -	2.56	167.75	0.18	95	839.43	130.31	17.73	12753.45	0.11	0.03	0.02	0.07
LINel4-NarenTeam Linux	4.66	305.76	0.42	96	1046.62	63.21	6.04	9216	-	-	0.01	0.01
Naren testting DND -	-	-	-	-	-	-	-	18432	-	-	-	-
New Virtual Machine-SR -	-	-	-	-	-	-	-	8192	-	-	-	-
VMware Studio -	1.33	88.35	0.14	99	512.93	30.81	6.01	30720	0.11	0.02	0.02	0.04
eG Enterprise Suite Linux	6.66	428.29	0.28	99	1024.25	411.56	40.18	10240	0.21	0.02	0.05	0.19
eG Enterprise Suite- JV Linux	3.31	213.98	0.28	99	1024.58	236.39	23.08	10240	0.17	0.01	0.03	0.05
ifconfig -	0.72	49.46	0.32	99	1033.26	5.34	0.52	10240	0	0	0	0
vm2008 -	0.03	4.56	0	99	1388.44	0.6	0.04	8192	-	-	0	0
winsys-karthi Windows Server 2003	3.05	198.26	0.12	99	500	154	30.8	18432	-	-	0.02	0.08
xendesktopxpvc -	0.42	30.72	0.02	99	512.52	52.37	10.22	8192	0	0	0	0
xendesktopxpvc (10.153) -	2.9	190.35	0.06	66	512.24	218.52	42.67	8192	0.19	0.14	0.05	0.22

Physical Server Report Details for VMware vSphere ESX in the Cluster : --All--

Registered VMs	Powered On VMs		Consumed Memory	Free Memory	CPU Usage	Disk Usage	Disk Commands	Disk Command Aborts	Network Traffic Out	Network Traffic In	Network Usage	Health
(Number)	(Number)		(MB)	(%)	(%)	(%)	(Cmds/Sec)	(Aborts/sec)	(Mbps)	(Mbps)	(Mbps)	(%)
Avg	Avg	Max	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	
Summary 7.82	5.76	-	3314.19	46.01	13.41	97.86	39.22	0	0.61	0.49	1.11	3.86
Esxi_136 7.82	5.76	7	3314.19	46.01	13.41	97.86	39.22	0	0.61	0.49	1.11	3.11

Figure 9.111: The Cluster - Physical servers report revealing the CPU and memory usage of every cluster on a vCenter

36. To zoom into the performance of a particular cluster, just click on it. Figure 9.112 will then appear.

Cpu usage details for Cluster Resourcepool for a cluster : new_cluster

	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used		CPU limit	
	(%)		(%)		(%)		(%)		(%)		(%)		(%)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	-	-	2328.6	-	30.2	-	11492	-	-	-	-	-	11643	-
resources	-	-	11643	11643	151	151	11492	11492	-	-	-	-	11643	11643
resources/new_clusterpool	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-
resources/new_clusterpool/eqpo ...	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-
resources/resourcepoolfor179	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-
resources/resourcepoolfor179/c ...	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-

Memory usage details for Cluster Resourcepool for a cluster : new_cluster

	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Memory limit of pool		Active memory used		Active memory	
	(%)		(%)		(%)		(%)		(%)		(%)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	1437.66	-	1305.18	-	317.81	-	6525.92	-	-	-	-	-
resources	5393.73	5618	6525.92	6528	1047.88	1049	6525.92	6528	-	-	-	-
resources/new_clusterpool	1016.15	1047	0	0	314.19	315	-	-	-	-	-	-
resources/new_clusterpool/eqpo ...	274.67	277	0	0	103	103	-	-	-	-	-	-
resources/resourcepoolfor179	503.77	559	0	0	124	124	-	-	-	-	-	-
resources/resourcepoolfor179/c ...	0	0	0	0	0	0	-	-	-	-	-	-

Figure 9.112: A report displaying the details of a particular cluster

37. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the icon in that page.

9.16 Cluster - Virtual Machines Report

A resource-intensive VM running on a host operating system can create a severe dent in not only the resources of the host, but also the consolidated resources of the cluster to which the host belongs. It is imperative that you monitor the current and historical performance of the VMs in a cluster, so that resource contentions can be captured early and resolved quickly. The **Cluster - Virtual Machines** report provides you with historical insights into the performance of VMs with a cluster, thereby turning the spotlight on potential resource contentions.

To generate this report, do the following:

1. Select the **Virtual Machines** option from the **vCenter Reports** node of the **REPORTS BY FUNCTION** tree.
2. Figure 9.113 will then appear.

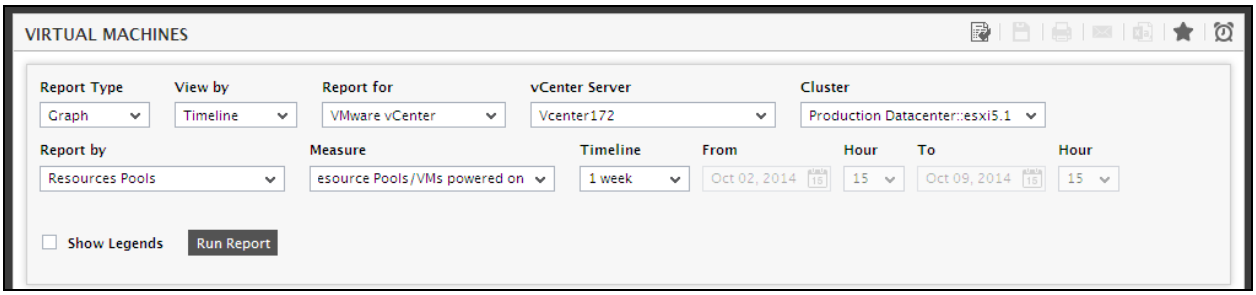


Figure 9.113: Providing the specifications of the Cluster - Virtual Machines report

3. First, pick a **Report Type**. For a graphical representation of the VM performance, pick the **Graph** option. To view the metrics related to the resource usage of the VMs in a cluster in a tabulated form, pick the **Data** option.
4. If the **Report Type** is **Graph**, then the **View by** list will offer 2 options - **Timeline** and **Distribution**. While the **Timeline** option will provide a time-of-day measure graph depicting resource pool performance, the **Distribution** option will result in distribution pie charts and bar graphs being displayed. The default selection is however **Timeline**.
5. By default, the **Report for** list will display **VMware vCenter** as its selection.
6. From the **vCenter Server** list, pick the vCenter server for which the report is to be generated.
7. Upon selecting the **vCenter Server**, the **Cluster** list will get automatically populated with those clusters that are being managed by the chosen **vCenter Server**. Pick a cluster for which this report is to be generated.
8. Then, pick an option from the **Report by** list. By default, the **Virtual Machines** option will be chosen here.
9. Next, pick a measure for which a graph is to be generated, from the **Measure** list.
10. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

11. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate

the report by clicking the **RUN REPORT BUTTON** soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.114). The steps below discuss each of these settings and how they can be customized.

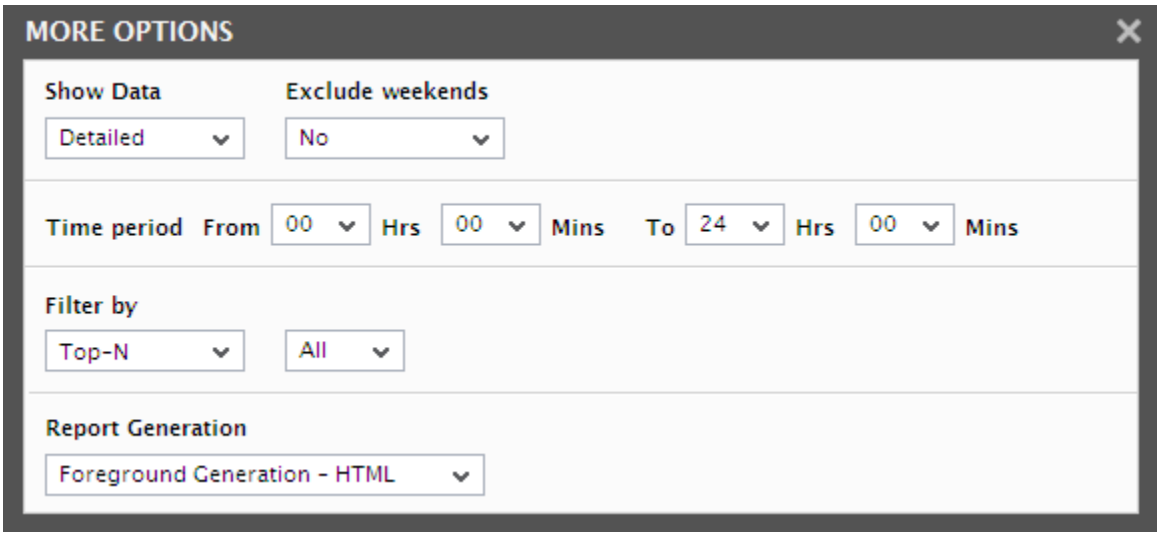


Figure 9.114: The default settings for generating the Cluster Virtual Machines report

12. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.113. By default, the **Detailed** option is selected in Figure 9.113 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
- From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.7) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

13. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_CLUSTER]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday**,**Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday**,**Saturday**.
- Save the file after making the required changes.

14. Next, indicate the report **Time period**.
15. You can further filter the resultset of your report picking one of the following options from the **Filter by** list:
    - **TOP-N** - Select this option and pick a **TOP-N** or a **LAST-N** option from the drop-down list adjacent to it to ensure that the resulting graph only plots the values of the specified number of **TOP** / **LAST** players in the chosen performance arena.
    - **Range** - Pick this option and provide a value range in the **From** and **To** text boxes that appear alongside.
    - **Greaterthan** - Pick this option and provide a value in the text box that appears alongside to view the details of only those resource pools which have registered a value greater than the value specified in that box for the chosen **Measure**.
    - **Lessthan** - Pick this option and provide a value in the text box that appears alongside to view the details of only those resource pools which have registered a value lesser than the value specified in that box for the chosen **Measure**.
16. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

Note

17. Finally, click the **Run Report** button.
18. If the **Report Type** is **Graph**, the **View by** selection is **Timeline**, the **Report by** option is **Resource Pools**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking the **Run Report** button will invoke Figure 9.115.

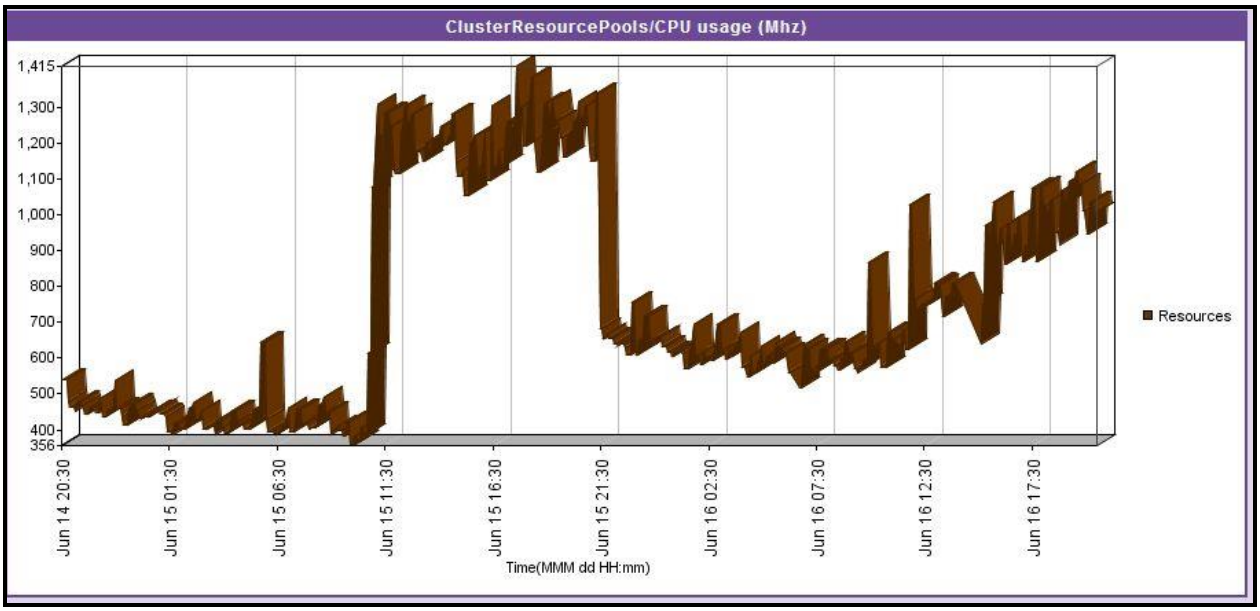


Figure 9.115: A Cluster - Resource Pools report if the 'View by' option chosen is 'Timeline' and 'Report by' option is 'Resource pools'

19. Figure 9.115, as you can see, displays a time-of-day graph - this graph compares the behavior of the chosen performance measure acriss all the resource pools within the selected cluster during the specified timeline. For instance, if *CPU usage* is the **Measure** chosen, then this graph will compare the CPU usage of the resource pools in the cluster, thus visually enabling you toidentify which resource pool is utilizing CPU excessively.

20. If the **Report Type** is **Graph**, the **View by** selection is **Timeline**, the **Report for** option is **Physical Servers**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking the **RUN REPORT BUTTON** will invoke Figure 9.116. The graph displayed in Figure 9.116 will enable you to quickly compare the chosen performance metric across all the physical servers in the selected cluster so that, resource-intensive servers in the cluster can be isolated.

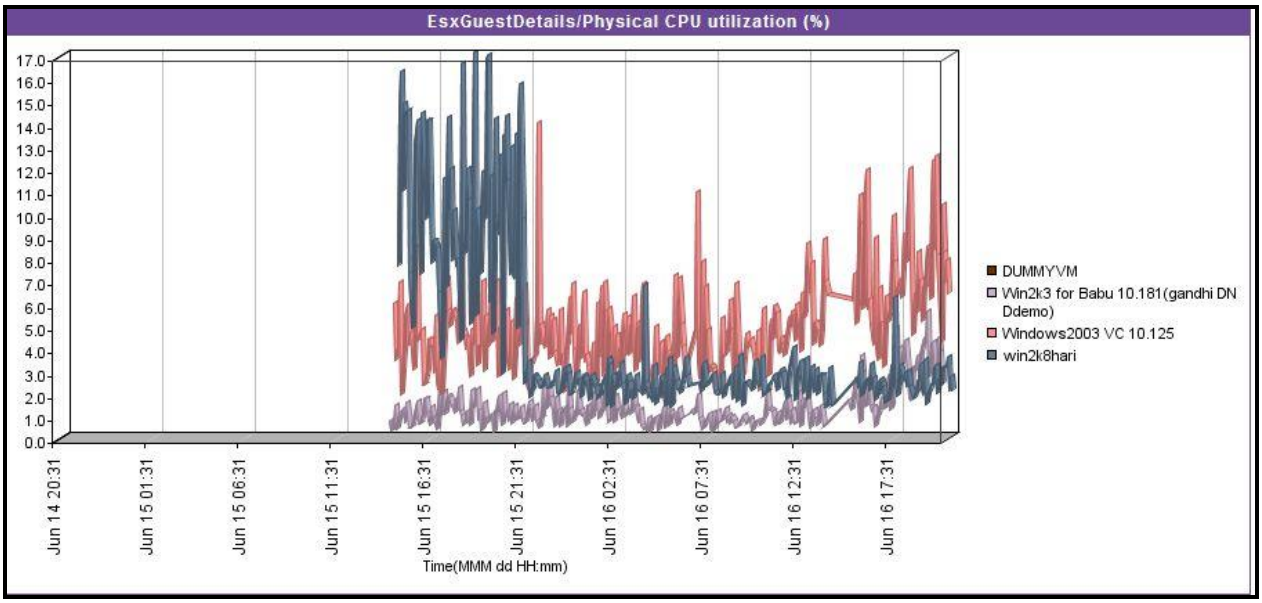


Figure 9.116: The Cluster -Virtual Machines report if the 'View by' selection is 'Timeline' and the 'Report by' selection is 'Virtual machines'

21. Now, if the **Report Type** is **Graph**, the **View by** selection is **Distribution**, the **Report by** option is **Virtual Machines**, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking the **RUN REPORT BUTTON** will invoke Figure 9.117.

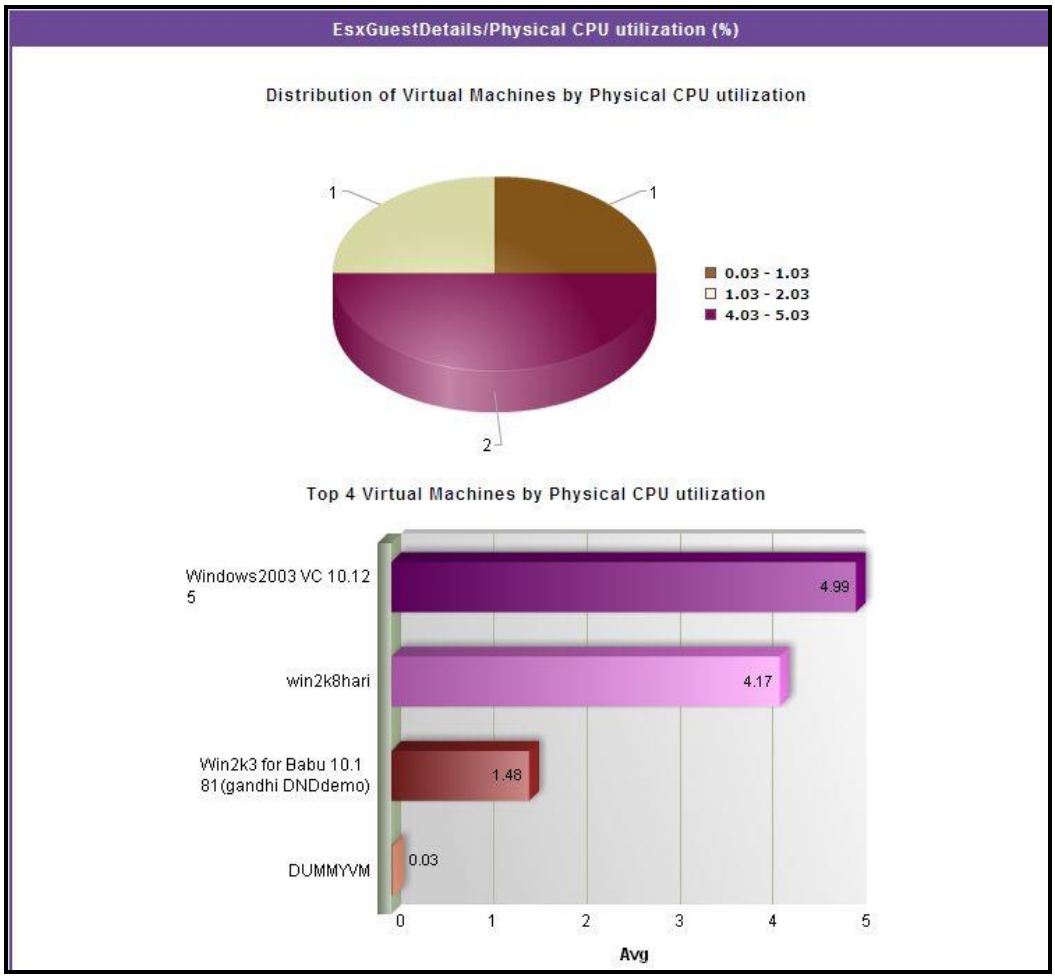


Figure 9.117: A Cluster - Resource pools report that appears when the 'View by' option is 'Distribution' and 'Report by' option is 'Virtual Machines'

22. Figure 9.117 reveals the following:

- A distribution pie chart that depicts the number of virtual machines that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Physical CPU utilization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Physical CPU utilization* - alone is calculated for every virtual machine configured on each physical server in the chosen **Cluster**. The resulting pie chart enables administrators to deduce, at a glance, the number of virtual machines where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the VMs that fall within the value range represented by that slice (see Figure 9.118). Against every server, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A cluster-level **Summary** of the chosen **Measure** will also be available.

By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

Note

By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_CLUSTER]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

REPORTER DATA

Cluster Details Data for - :vCenter125 : VMware vCenter

EsxGuestDetails / Physical CPU utilization	Start Date:Jun 14, 2010 20Hrs 35Mins	End Date:Jun 16, 2010 20Hrs 35Mins

Summary for - vCenter125

Cluster Details Report for - vCenter125 :VMware vCenter

Range	Virtual Machines	Physical CPU utilization
-	-	Avg
4.03-5.03	Windows2003 VC 10.125	4.99
4.03-5.03	win2k8hari	4.17

Figure 9.118: The virtual machines that fall within the usage range clicked on

23. Adjacent to the pie chart, you will find a bar chart that indicates the VMs that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Physical CPU utilization* measure, this bar chart reveals the VMs in the cluster that are using CPU excessively. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

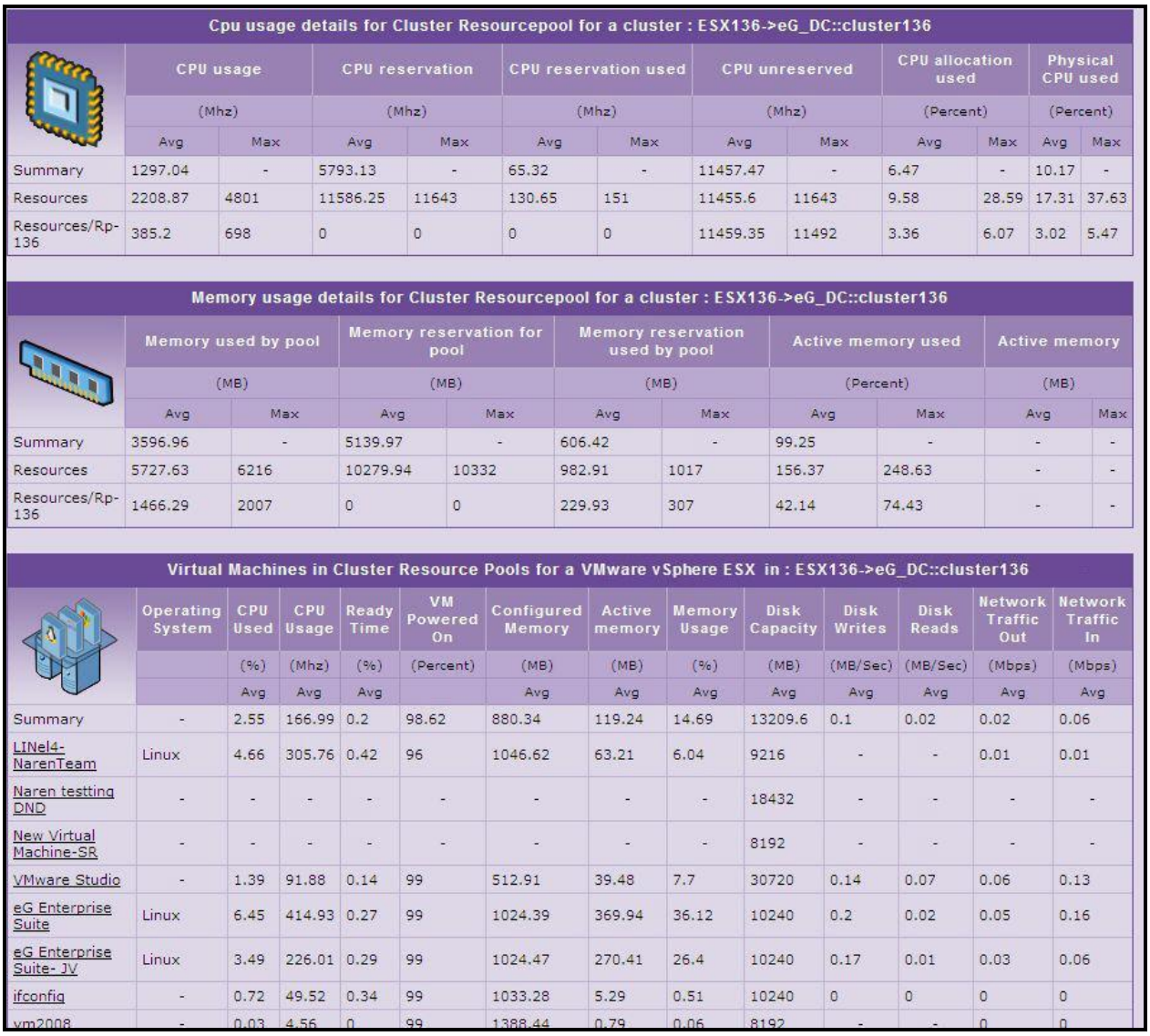
You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_CLUSTER]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_CLUSTER]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, select **Top-N** from the **Filter by** list in Figure 9.114 and pick an option from the adjacent drop-down list.

24. If the **Report Type** is **Data**, then the **View by** list will no longer appear. Also, the **Report by** section will now allow you to choose between the **Physical Servers** and the **Virtual Machines** options - here again, the **Virtual Machines** option will be chosen by default. Moreover, besides enabling you to view the data pertaining to all/specific clusters managed by a chosen vCenter server, the **Data** report will also enable you to view the data pertaining to all/specific **Resource Pools**.
25. If the **Virtual Machines** check box alone is selected from **Report by**, then, Figure 9.119 will appear upon clicking the **RUN REPORT BUTTON**. As you can see, in addition to the default sections focusing on CPU and memory usage, Figure 9.119 provides a **Virtual Machines** section that indicates how resource-intensive each VM in the cluster is. Using this information, you can figure out whether any of the VMs have contributed to any deterioration in the performance of the cluster.



Cpu usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used	
	(Mhz)		(Mhz)		(Mhz)		(Mhz)		(Percent)		(Percent)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	1297.04	-	5793.13	-	65.32	-	11457.47	-	6.47	-	10.17	-
Resources	2208.87	4801	11586.25	11643	130.65	151	11455.6	11643	9.58	28.59	17.31	37.63
Resources/Rp-136	385.2	698	0	0	0	0	11459.35	11492	3.36	6.07	3.02	5.47

Memory usage details for Cluster Resourcepool for a cluster : ESX136->eG_DC::cluster136

	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Active memory used		Active memory	
	(MB)		(MB)		(MB)		(Percent)		(MB)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	3596.96	-	5139.97	-	606.42	-	99.25	-	-	-
Resources	5727.63	6216	10279.94	10332	982.91	1017	156.37	248.63	-	-
Resources/Rp-136	1466.29	2007	0	0	229.93	307	42.14	74.43	-	-

Virtual Machines in Cluster Resource Pools for a VMware vSphere ESX in : ESX136->eG_DC::cluster136

	Operating System	CPU Used	CPU Usage	Ready Time	VM Powered On	Configured Memory	Active memory	Memory Usage	Disk Capacity	Disk Writes	Disk Reads	Network Traffic Out	Network Traffic In
		(%)	(Mhz)	(%)	(Percent)	(MB)	(MB)	(%)	(MB)	(MB/Sec)	(MB/Sec)	(Mbps)	(Mbps)
		Avg	Avg	Avg		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
Summary	-	2.55	166.99	0.2	98.62	880.34	119.24	14.69	13209.6	0.1	0.02	0.02	0.06
LINel4-NarenTeam	Linux	4.66	305.76	0.42	96	1046.62	63.21	6.04	9216	-	-	0.01	0.01
Naren testting DND	-	-	-	-	-	-	-	-	18432	-	-	-	-
New Virtual Machine-SR	-	-	-	-	-	-	-	-	8192	-	-	-	-
VMware Studio	-	1.39	91.88	0.14	99	512.91	39.48	7.7	30720	0.14	0.07	0.06	0.13
eG Enterprise Suite	Linux	6.45	414.93	0.27	99	1024.39	369.94	36.12	10240	0.2	0.02	0.05	0.16
eG Enterprise Suite- JV	Linux	3.49	226.01	0.29	99	1024.47	270.41	26.4	10240	0.17	0.01	0.03	0.06
ifconfig	-	0.72	49.52	0.34	99	1033.28	5.29	0.51	10240	0	0	0	0
vm2008	-	0.03	4.56	0	99	1388.44	0.79	0.06	8192	-	-	0	0

Figure 9.119: A Cluster Details Report additionally providing virtual machine information

26. Clicking on a VM in this section will lead you to the **Virtual Machine Details** report of that VM.

27. If the **All** option had been chosen from the **Cluster** list in Figure 9.113, the resulting report will display CPU and memory usage metrics related to every cluster configured on the chosen **vCenter Server** (see Figure 9.120). If both the **Physical Servers** and **Virtual Machines** check boxes are selected, then the report will also explore the resource usage of the ESX servers and VMs in all the clusters managed by the chosen **vCenter Server** (see Figure 9.120).

Cpu usage details for Cluster Resourcepool for a cluster : --All--

Resourcepools	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used	
	(Mhz)		(Mhz)		(Mhz)		(Mhz)		(Percent)		(Percent)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary -	1149.79	-	1783.3	-	15.48	-	3065.05	-	8.07	-	12.75	-
ESX 179->Datacenter 179::cluster 179 Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX102->102 DC::Cluster 102 Resources	1120.19	2444	3642.72	4792	0	0	3642.72	4792	11.69	25.5	20.01	43.66
ESX136->eG DC::cluster136 Resources	1981.76	4801	10623.68	11643	123.82	151	10499.86	11492	9.05	28.59	15.53	37.63
ESX136->eG DC::cluster136 Resources/Rp-136	347.43	698	0	0	0	0	10377.8	11492	3.47	7.09	2.72	5.47
ESX136->eG DC::sr1 Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr2 Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr Resources	-	-	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr Resources/sr	-	-	0	0	0	0	0	0	-	-	-	-

Memory usage details for Cluster Resourcepool for a cluster : --All--

Resourcepools	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Active memory used		Active memory	
	(MB)		(MB)		(MB)		(Percent)		(MB)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary -	954.44	-	1318.9	-	168.48	-	92.07	-	156.81	-
ESX 179->Datacenter 179::cluster 179 Resources	0	0	0	0	0	0	-	-	-	-
ESX102->102 DC::Cluster 102 Resources	301.44	1497	1137.97	1497	203.04	270.2	99.9	294.67	222.03	617.76
ESX136->eG DC::cluster136 Resources	5773.48	6216	9413.23	10332	918.26	1017	141.56	248.63	205.18	781.25
ESX136->eG DC::cluster136 Resources/Rp-136	1560.62	2007	0	0	226.51	307	34.76	74.43	43.21	135.85
ESX136->eG DC::sr1 Resources	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr2 Resources	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr Resources	0	0	0	0	0	0	-	-	-	-
ESX136->eG DC::sr Resources/sr	0	0	0	0	0	0	-	-	-	-

Virtual Machines in Cluster Resource Pools for a VMware vSphere ESX in : --All--

Operating System	CPU Used	CPU Usage	Ready Time	VM Powered On	Configured Memory	Active memory	Memory Usage	Disk Capacity	Disk Writes	Disk Reads	Network Traffic Out	Network Traffic In
	(%)	(Mhz)	(%)	(Percent)	(MB)	(MB)	(%)	(MB)	(MB/Sec)	(MB/Sec)	(Mbps)	(Mbps)
	Avg	Avg	Avg		Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg
Summary -	2.56	167.75	0.18	95	839.43	130.31	17.73	12753.45	0.11	0.03	0.02	0.07
LINel4-NarenTeam Linux	4.66	305.76	0.42	96	1046.62	63.21	6.04	9216	-	-	0.01	0.01
Naren testting DND -	-	-	-	-	-	-	-	18432	-	-	-	-
New Virtual Machine-SR -	-	-	-	-	-	-	-	8192	-	-	-	-
VMware Studio -	1.33	88.35	0.14	99	512.93	30.81	6.01	30720	0.11	0.02	0.02	0.04
eG Enterprise Suite Linux	6.66	428.29	0.28	99	1024.25	411.56	40.18	10240	0.21	0.02	0.05	0.19
eG Enterprise Suite- JV Linux	3.31	213.98	0.28	99	1024.58	236.39	23.08	10240	0.17	0.01	0.03	0.05
ifconfig -	0.72	49.46	0.32	99	1033.26	5.34	0.52	10240	0	0	0	0
vm2008 -	0.03	4.56	0	99	1388.44	0.6	0.04	8192	-	-	0	0
winsys-karthi Windows Server 2003	3.05	198.26	0.12	99	500	154	30.8	18432	-	-	0.02	0.08
xendesktopxpvc -	0.42	30.72	0.02	99	512.52	52.37	10.22	8192	0	0	0	0
xendesktopxpvc (10.153) -	2.9	190.35	0.06	66	512.24	218.52	42.67	8192	0.19	0.14	0.05	0.22

Physical Server Report Details for VMware vSphere ESX in the Cluster : --All--

Registered VMs	Powered On VMs		Consumed Memory	Free Memory	CPU Usage	Disk Usage	Disk Commands	Disk Command Aborts	Network Traffic Out	Network Traffic In	Network Usage	Health
(Number)	(Number)		(MB)	(%)	(%)	(%)	(Cmds/Sec)	(Aborts/sec)	(Mbps)	(Mbps)	(Mbps)	(%)
Avg	Avg	Max	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	
Summary 7.82	5.76	-	3314.19	46.01	13.41	97.86	39.22	0	0.61	0.49	1.11	3.86
Esxi_136 7.82	5.76	7	3314.19	46.01	13.41	97.86	39.22	0	0.61	0.49	1.11	3.11

Figure 9.120: The Cluster Details report revealing the CPU and memory usage of every cluster on a vCenter

28. To zoom into the performance of a particular cluster, just click on it. Figure 9.121 will then appear.

Cpu usage details for Cluster Resourcepool for a cluster : new_cluster

	CPU usage		CPU reservation		CPU reservation used		CPU unreserved		CPU allocation used		Physical CPU used		CPU limit	
	(%)		(%)		(%)		(%)		(%)		(%)		(%)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	-	-	2328.6	-	30.2	-	11492	-	-	-	-	-	11643	-
resources	-	-	11643	11643	151	151	11492	11492	-	-	-	-	11643	11643
resources/new_clusterpool	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-
resources/new_clusterpool/eqpo ...	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-
resources/resourcepoolfor179	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-
resources/resourcepoolfor179/c ...	-	-	0	0	0	0	11492	11492	-	-	-	-	-	-

Memory usage details for Cluster Resourcepool for a cluster : new_cluster

	Memory used by pool		Memory reservation for pool		Memory reservation used by pool		Memory limit of pool		Active memory used		Active memory	
	(%)		(%)		(%)		(%)		(%)		(%)	
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	1437.66	-	1305.18	-	317.81	-	6525.92	-	-	-	-	-
resources	5393.73	5618	6525.92	6528	1047.88	1049	6525.92	6528	-	-	-	-
resources/new_clusterpool	1016.15	1047	0	0	314.19	315	-	-	-	-	-	-
resources/new_clusterpool/eqpo ...	274.67	277	0	0	103	103	-	-	-	-	-	-
resources/resourcepoolfor179	503.77	559	0	0	124	124	-	-	-	-	-	-
resources/resourcepoolfor179/c ...	0	0	0	0	0	0	-	-	-	-	-	-

Figure 9.121: A report displaying the details of a particular cluster

29. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the PDF icon in that page.

By default, the metrics displayed in the **Cluster - Physical Servers**, **Cluster - Virtual Machines**, **Cluster - Resource Pools**, and **Cluster - Details** report and the functions applied on them are pre-configured in two groups - namely, *Cpu_usage* and *Memory_usage* - in the **[VIRTUAL_CLUSTER]** section in the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The names of these default groups cannot be changed, but you can modify the **eg_report.ini** file to include more metrics to the groups and apply additional functions to them. Typically, all CPU-related metrics will be added to the *Cpu_usage* group, and the memory-related metrics to the *Memory_usage* group. To add a new measure to say, the *Cpu_usage* group, you will have to insert a line in the following format in the **[VIRTUAL_CLUSTER]** section of the **eg_report.ini** file:

Cpu_usage:<InternalTestName>:<InternalMeasureName>=<Comma-separated list of functions>

For instance, to add the *Physical CPU used* measure to the *Cpu_usage* group, insert the following line:

Cpu_usage:ClusterResPoolTest:Physical_cpu_used=Avg,Max

Similarly, to add the *Memory used* measure to the *Memory_usage* group, insert the following line:

Memory_usage: ClusterResPoolTest:Memory_used=Avg,Max

The default measure configurations for the **Physical Servers Report** section will be available in the **[VIRTUAL_HOST]** section of the file. You can override this default setting by adding more physical server-related tests or removing some existing tests. To add a new measure to this section, add an entry of the following format:

<InternalTestName>:<InternalMeasureName>#<MeasureDisplayName>=<Comma-separated list of functions>

For instance, to add the *Registered guests* measure to the **Physical Servers** section, your specification should be:

EsxGuestStatusTest:Registered_guests#Registered guests=Avg,Max

The default measure configurations for the **Virtual Machines** section on the other hand will be available in the **[VIRTUAL_GUEST]** section of the file. You can override this default setting by adding more VM-related tests or removing some existing tests. To add a new measure to this section, add an entry of the following format:

<InternalTestName>:<InternalMeasureName>#<MeasureDisplayName>=<Comma-separated list of functions>

For example, to add the *Physical CPU used* measure to the **Virtual Machines** section, your specification should be:

EsxGuestTest:Cpu_used#CPU Used=Avg,Max

To know the internal names of tests and measures, follow the steps discussed in Page 212 of this manual.

9.17 Cluster VM Sprawl Report

Large virtualized environments are typically characterized by a multitude of virtual hosts, each hosting tens of virtual machines. Administrators need to periodically review the usage of these VMs in order to identify those VMs that have been utilized optimally and those that have been under-utilized. Since each VM, regardless of its powered-on state and user activity, consumes disk space and memory, the knowledge of unused/under-used VMs will enable administrators to decide whether/not to pull down such VMs in an effort to conserve valuable physical resources. The resources thus released may be used to support critical operations performed by other VMs or to avert slowdowns/performance degradations experienced by mission-critical applications executing on these VMs.

To provide administrators with insights into the state and usage of VMs across their virtualized environment, and to enable them to instantly identify unused VMs, eG Enterprise offers the **Cluster VM Sprawl** report. Using this report, administrators can figure out the following:

- How many VMs across the environment are in a powered-off state? Which ones are they?
- What percentage of time has a VM been in a powered-off state?
- Are there any powered-on VMs to which users have not logged in for a long time? If so, which ones are they?
- How much memory and disk space has each unused VM been configured with? Can the removal of these unused VMs improve the performance of other VMs and applications executing on them?

To generate this report, do the following:

1. Select **VM Sprawl** option from the **vCenter Reports** node of the **REPORTS BY FUNCTION** tree. Figure 9.122 then appears.

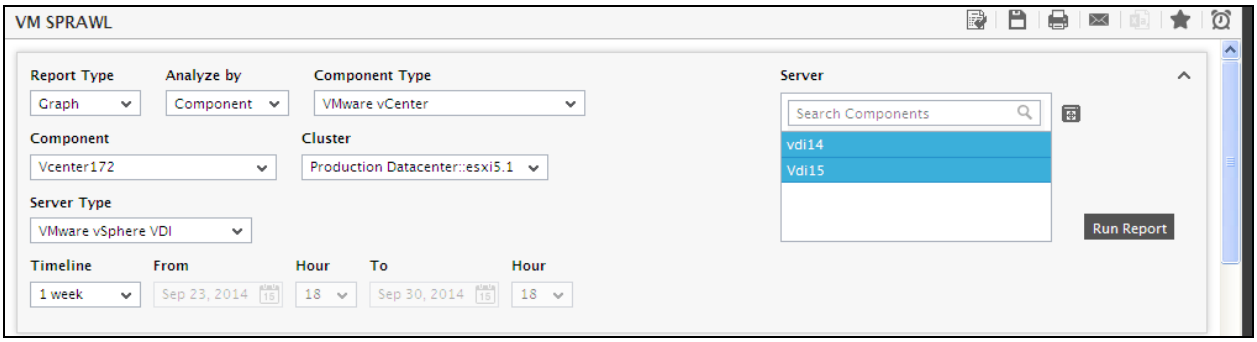


Figure 9.122: Providing the specifications for the Cluster VM SPRAWL report

2. As shown in Figure 9.122, for a graphical report, select **Graph** as the **Report Type**. For a tabular report, select **Data**.
3. Then, select a criterion for analysis from the **Analyze by** list box. Using this report, you can analyze the performance of one/more vCenter components, or those that are part of a **Zone**. The options provided by the **Analyze by** list box are discussed hereunder:
   - **Component**: Select this option to choose the vCenter component(s) from across all the components that are available in the cluster environment. For instance, for a report on the powered-on state of VMs executing within the clusters managed by an independent vCenter server in the environment, select **Component** from the **Analyze by** list, select *VMware vCenter* from the **Component Type** list, and then select the VMware vCenter host listed in the **Component** list.
   - **Zone**: Pick this option for a report on the performance of vCenter components that are included in a zone. Then, choose a **Zone**. When a zone is picked, the **Include Subzone** flag is set to "Yes" by default, indicating that the vCenter components within the subzones of the chosen zone will also be considered for report generation. To exclude subzones from the scope of your report, set this flag to "No". If the chosen zone (or its subzones) includes one/more components of vCenter type, then the **Component Type** list will include the *VMware vCenter* option. Selecting this type will populate the **Components** list with all components of that type, which are present in the selected zone. Select a vCenter component from this list.
4. Select a cluster managed by the VMware vCenter Component from the **Cluster** drop-down list.
5. Then, select a physical server type that is included in the cluster from the **Server Type** drop-down list. The servers of the chosen type will then be listed in the **Server** list box. Pick one/more servers from this list. If the **Server** list consists of too many servers, then viewing all the servers and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Server** list. The **SERVERS** pop up window will then appear using which you can view almost all the servers in a single interface and select the ones for which the report is to be generated.
6. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more **Servers**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.123). The steps below discuss each of these settings and how they can be customized.

Figure 9.123: The default settings for generating the Cluster VM Sprawl reportk

8. Select any one of the following options from the **Metric** list:
   - For ESX hosts in the environment, the default selection from the **Metric** drop-down is **Powered On**.
   - For VDI environments, the **Metric** drop-down will provide an additional **Powered On With User** option.
9. Then, select a convenient show option from the **Show** drop list.

The **Show** drop down list appears only when a graphical report is to be generated. The selection from this list governs the maximum number of VMs to be displayed in the bar graph. The default options of the **Show** list are: Top-25, Top-50, All, Last-25, Last-50. This default setting is governed by the **ShowTop** parameter in the **[VM_SPRAWL]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory). By default, this **ShowTop** parameter is set to 50. To view bar graphs for a more or less number of VMs, you may want to change this value. For example, if you set **ShowTop** to 100, then, the **Show** drop-down list in the report page will provide administrators with the following options: Top-100, Top-50, All, Last-100, and Last-50.

10. eG Enterprise allows users to generate desired reports for a specific time period. In large environments, while generating reports for long time periods, say a few weeks to months, report generation was found to slow down, owing to the large volume of data being processed. If users needed to generate many such reports quickly, the slowdown compelled them to generate these reports one after another, thus affecting the speed of their operations, and consequently, their productivity. eG Enterprise now includes a background processing feature that will enable users to process multiple reports, spanning long time periods in the background, while allowing them the bandwidth to generate short-term reports in the foreground. This way, users can generate multiple reports with little-to-no loss of time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation** list will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because; the **MinDurationForReport** setting governs, when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

11. Finally, click the **Run Report** button to generate the report.

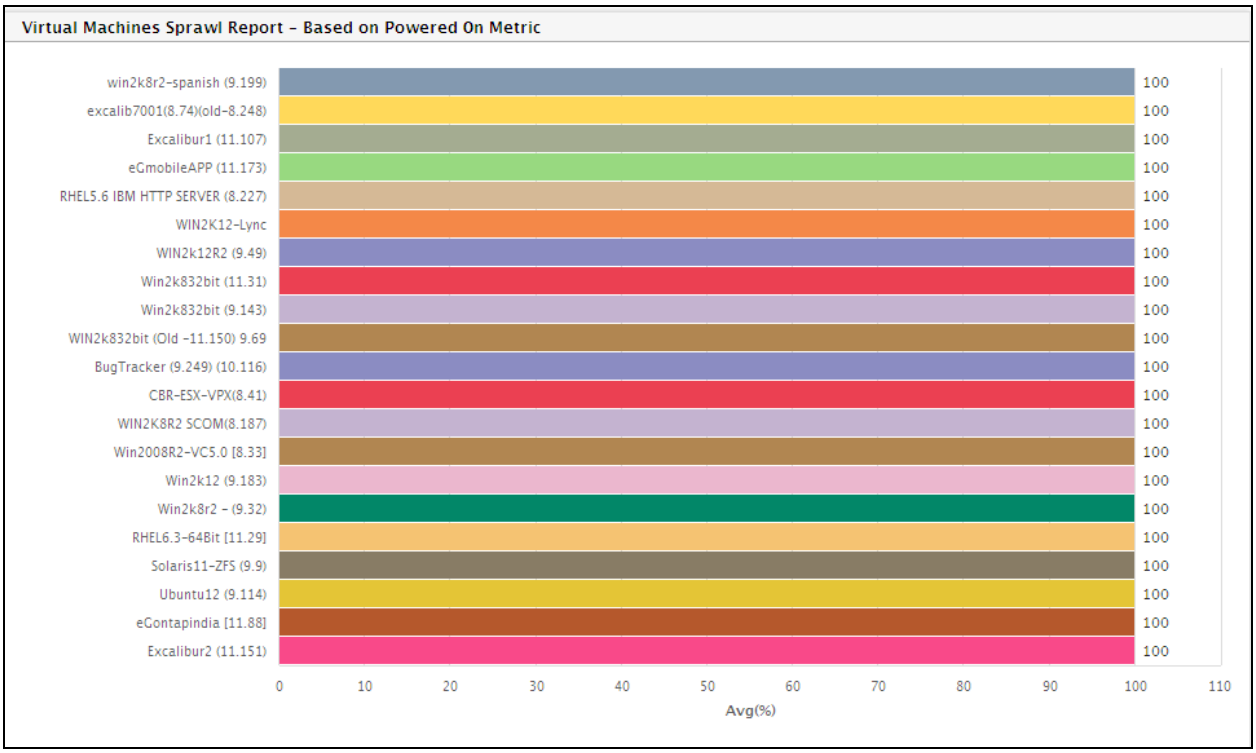


Figure 9.124: Graph showing the Powered On state of the VMs

12. For ESX virtual hosts environment, if the **Report Type** is **Graph**, you will view a report comprising a *bar chart* that reveals the VMs that have been configured on all the chosen virtual hosts, and the percentage of time (during the chosen **Timeline**) for which each VM has been in a powered-on state. Using this graph, you can instantly identify VMs that have remained in a powered-off state for a considerably long time; this way, VMs that have been unnecessarily eroding the allocated resources can be identified. Figure 9.124 shows the bar graph of this report.

13. For VDI environments, if the **Display** option chosen is **Powered On With User**, then, the resulting bar chart will reveal the percentage of time each VM in the environment has been in the powered on state with a user logged in. Using this graph, you can not only identify VMs that have been powered-off for a long time, but also powered-on VMs that have remained idle for a long time.

Note

You can configure the bar colors of the bar chart in the report, by editing the eg_report.ini file in the **{EG_INSTALL_DIR}\manager\config** directory. The **FusionColorForPowerOnPercent** parameter in the **[VM_SPRAWL]** section of the file defines the default colors of the bars in your graph. You can change any of the color codes to change the color of a bar.

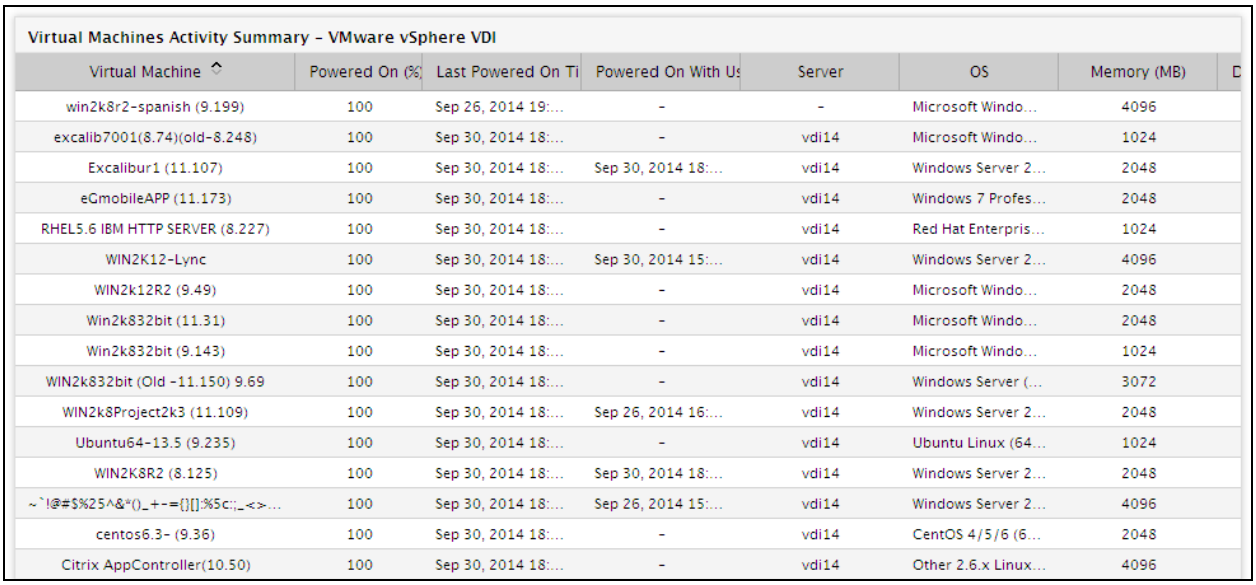
---

14. Unlike a **Graph** report, a **Data** report does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report.

15. If the **Report Type** is **Data**, clicking on the **Run Report** button will lead you to Figure 9.125.

16. For each VM configured on the chosen vCenter components, the data report will display the percentage of time

for which that VM was in a powered-on state during the stated timeline (Refer Figure 9.125). In addition, the **Last Powered On** time of a VM is also revealed - this is nothing but the last time the eG agent checked the status of the VM and found that it was powered-on. Using this information, you can determine whether the VM was powered-on or off during the last measurement period. Also the measures such as Memory and Disk Capacity can also be viewed per VM, thus enabling you to assess how removal of unused VMs will impact the resource availability on the host.



Virtual Machines Activity Summary - VMware vSphere VDI

Virtual Machine	Powered On (%	Last Powered On Ti	Powered On With Us	Server	OS	Memory (MB)	D
win2k8r2-spanish (9.199)	100	Sep 26, 2014 19:...	-	-	Microsoft Windo...	4096	
excalib7001(8.74)(old-8.248)	100	Sep 30, 2014 18:...	-	vdi14	Microsoft Windo...	1024	
Excalibur1 (11.107)	100	Sep 30, 2014 18:...	Sep 30, 2014 18:...	vdi14	Windows Server 2...	2048	
eGmobileAPP (11.173)	100	Sep 30, 2014 18:...	-	vdi14	Windows 7 Profes...	2048	
RHEL5.6 IBM HTTP SERVER (8.227)	100	Sep 30, 2014 18:...	-	vdi14	Red Hat Enterpris...	1024	
WIN2K12-Lync	100	Sep 30, 2014 18:...	Sep 30, 2014 15:...	vdi14	Windows Server 2...	4096	
WIN2k12R2 (9.49)	100	Sep 30, 2014 18:...	-	vdi14	Microsoft Windo...	2048	
Win2k832bit (11.31)	100	Sep 30, 2014 18:...	-	vdi14	Microsoft Windo...	2048	
Win2k832bit (9.143)	100	Sep 30, 2014 18:...	-	vdi14	Microsoft Windo...	1024	
WIN2k832bit (Old -11.150) 9.69	100	Sep 30, 2014 18:...	-	vdi14	Windows Server (...	3072	
WIN2k8Project2k3 (11.109)	100	Sep 30, 2014 18:...	Sep 26, 2014 16:...	vdi14	Windows Server 2...	2048	
Ubuntu64-13.5 (9.235)	100	Sep 30, 2014 18:...	-	vdi14	Ubuntu Linux (64...	1024	
WIN2K8R2 (8.125)	100	Sep 30, 2014 18:...	Sep 30, 2014 18:...	vdi14	Windows Server 2...	2048	
~`!@#$%25^&*()_+-={}[]:%5c:;_<>...	100	Sep 30, 2014 18:...	Sep 26, 2014 15:...	vdi14	Windows Server 2...	4096	
centos6.3- (9.36)	100	Sep 30, 2014 18:...	-	vdi14	CentOS 4/5/6 (6...	2048	
Citrix AppController(10.50)	100	Sep 30, 2014 18:...	-	vdi14	Other 2.6.x Linux...	4096	

Figure 9.125: Data report of the VMs in VDI environments

17. In case of VDI environments, the data report will additionally reveal the percentage of time for which each VM was powered-on with an active user session; this way, you can quickly identify powered-on VMs that have been idle for long time periods. Also, a **Last User Access Time** will be available for each VM, which will reveal the last time a user had logged into that VM - this is nothing but the last time the eG agent checked the state of the VM and found that it was powered on with a user session active on it.

- Before emailing reports, ensure that the **SMTP mail host** and **eG Admdinistrator ID** are properly configured in the eG administrative interface (using the Alerts -> Mail Settings -> Server Settings option).
- When reports are sent by email, the body of the email will contain the reports so sent in HTML format. You can, if you so desire, send the report as an attachment by setting the **SendMailAsAttachment** flag to **Yes** (or **True**). This flag is available in the **[MISC_ARGS]** section of the **eg_services.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory).

18. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report button** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link, which will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can

even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the PDF icon in that page.

9.18 Cluster Capacity Planning Report

While planning the capacity of their virtual clusters, administrators often need to ascertain how many VMs are operating on their critical clusters, assess how these VMs are using the CPU and memory resources allocated to them, and determine whether sufficient resources are free in the cluster to support future operations. The findings from such an analysis will provide pointers to how the cluster capacity can be enhanced - can the cluster accommodate more VMs without requiring additional resources? or should the cluster be resized before adding more VMs to it?

The **Cluster Capacity Planning** report automates this analysis and makes prudent sizing recommendations with the help of which administrators can take accurate capacity decisions. On the basis of the historical CPU and memory usage of the VMs allocated to the cluster, the report reveals deficits in cluster sizing (if any). Also, on the basis of the free CPU and memory resources (if any) in the cluster, the report automatically computes how many more VMs the cluster can handle. In the process, the report turns the spotlight on that resource (CPU or memory) which serves as a serious constraint to expanding the VM capacity of the cluster.

To generate this report, do the following:

1. Select the **Capacity Planning** option from the **vCenter Reports** node of the **REPORTS BY FUNCTION** tree.
2. When Figure 9.126 appears, first select the **Report Type**. For a graphical report, choose the **Graph** option.

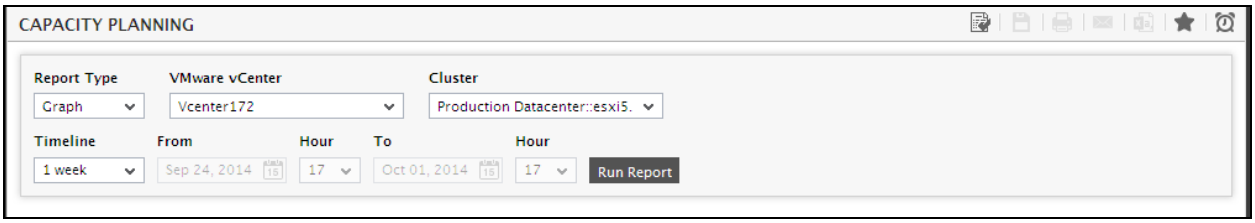


Figure 9.126: Generating a VM Capacity Planning report

3. Then, select the **VMware vCenter** server for which the report is to be generated.
4. From the list of **Cluster**s managed by the chosen vCenter, select the cluster for which the report is to be generated. For a report on all clusters, choose the **All** option.
5. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Cluster**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop don window (see Figure 9.127). The steps below discuss each of these settings and how they can be customized.

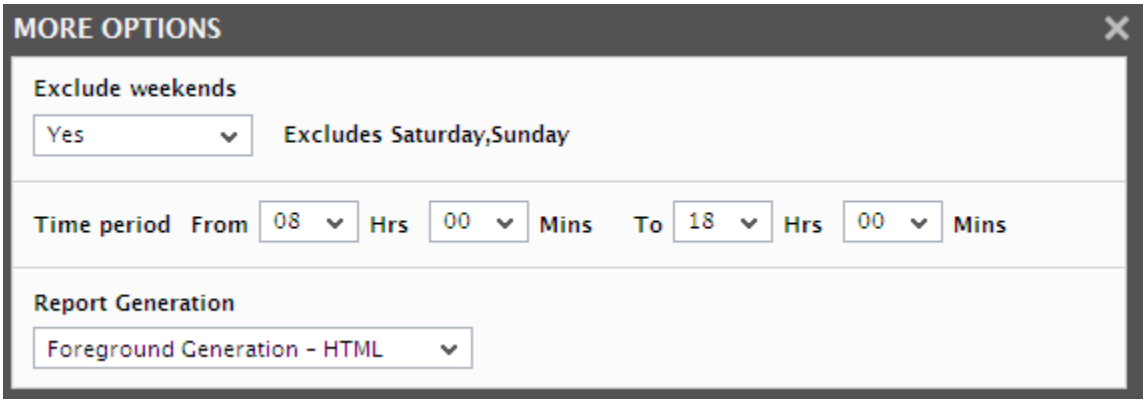


Figure 9.127: The default settings for generating the Cluster Capacity Planning report

7. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_CLUSTER]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday**,**Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday**,**Saturday**.
- Save the file after making the required changes.

8. Next, indicate the report **Time period**.
9. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

10. Finally, click the **Run Report** button. If the **Report Type** is Graph, then clicking the **Run Report** button will open Figure 9.128.

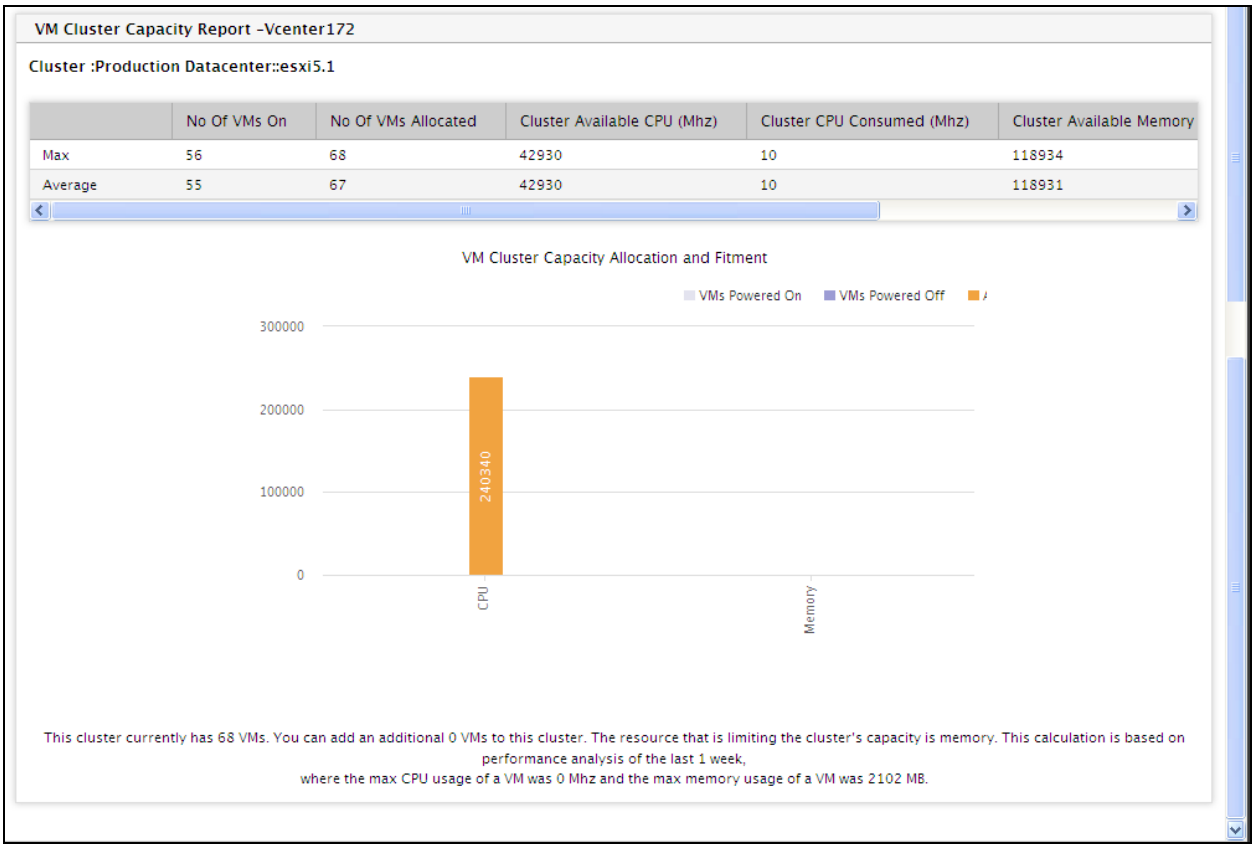

VM Cluster Capacity Report -Vcenter172
Cluster :Production Datacenter::esxi5.1
No Of VMs On
No Of VMs Allocated
Cluster Available CPU (Mhz)
Cluster CPU Consumed (Mhz)
Cluster Available Memory
Max 56 68 42930 10 118934
Average 55 67 42930 10 118931
VM Cluster Capacity Allocation and Fitment
VMs Powered On
VMs Powered Off
300000
200000
100000
0
240340
CPU
Memory
This cluster currently has 68 VMs. You can add an additional 0 VMs to this cluster. The resource that is limiting the cluster's capacity is memory. This calculation is based on performance analysis of the last 1 week,
where the max CPU usage of a VM was 0 Mhz and the max memory usage of a VM was 2102 MB.

Figure 9.128: A Graphical VM Capacity Planning Report

11. On the other hand, if the **Report Type** chosen is **Data**, then Figure 9.129 will appear when the **Run Report** button is clicked.

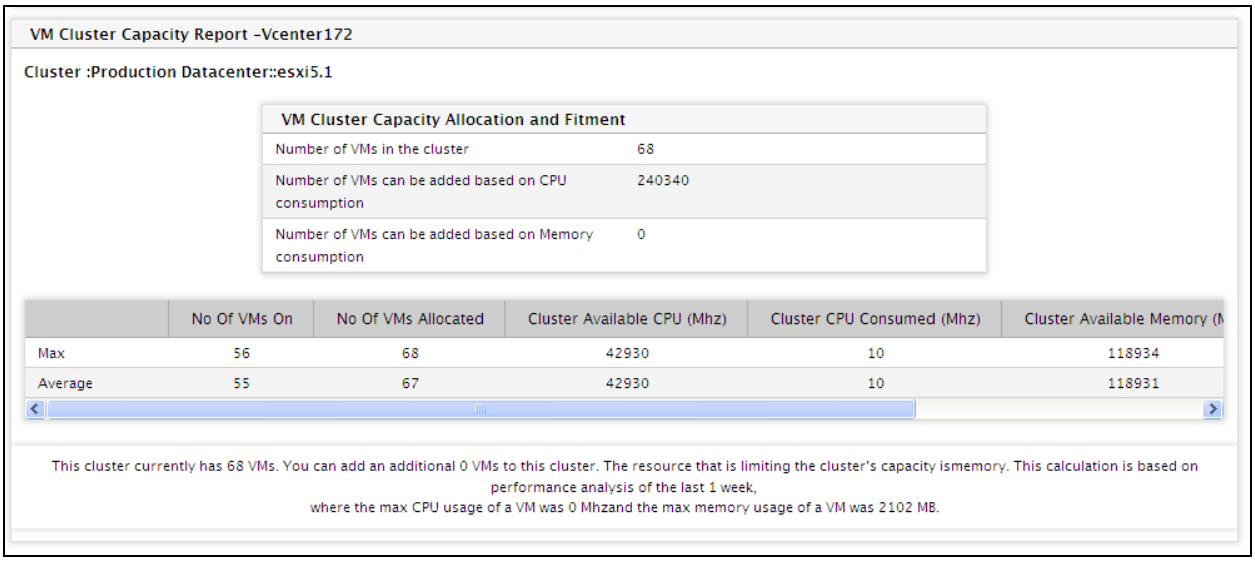

VM Cluster Capacity Report -Vcenter172
Cluster :Production Datacenter::esxi5.1
VM Cluster Capacity Allocation and Fitment
Number of VMs in the cluster 68
Number of VMs can be added based on CPU consumption 240340
Number of VMs can be added based on Memory consumption 0
No Of VMs On
No Of VMs Allocated
Cluster Available CPU (Mhz)
Cluster CPU Consumed (Mhz)
Cluster Available Memory
Max 56 68 42930 10 118934
Average 55 67 42930 10 118931
This cluster currently has 68 VMs. You can add an additional 0 VMs to this cluster. The resource that is limiting the cluster's capacity ismemory. This calculation is based on performance analysis of the last 1 week,
where the max CPU usage of a VM was 0 Mhzand the max memory usage of a VM was 2102 MB.

Figure 9.129: A VM Capacity Planning Report of type Data

12. From the reports of Figure 9.128 and Figure 9.129, you can instantly figure out how many VMs are operating

on the chosen cluster, how many are powered-on currently, how the cluster utilized the CPU and memory resources allocated to it during the given timeline, and how much CPU and memory is still available for use in the cluster. In addition, the report automatically computes how many more VMs can be supported by the free CPU resources on the cluster, and represents the same graphically. Likewise, it auto-computes the additional VMs that the free memory resources of the cluster can handle, and represents the same graphically. The report also clearly states its observations and its inferences at the bottom, and also indicates which resource is limiting the cluster's VM capacity - is it CPU or memory?

9.19 Datacenters Report

A vCenter server typically manages individual ESX servers, clusters, resource pools, and VMs as **Datacenters**. A **datacenter** is the primary container of inventory objects such as hosts and virtual machines. From the datacenter, you can add and organize inventory objects.

The **Datacenters** report provides an overview of the performance of a chosen datacenter over time, besides allowing users the flexibility to focus on the overall performance of the clusters, physical servers, VMs, and datastores contained in a datacenter. From the report, administrators can understand the composition of the selected datacenter, and also analyze the overall availability and resource-effectiveness of the elements (physical servers/VMs/clusters/datastores) included in the datacenter.

To generate the report, do the following:

1. Select **Datacenters option** from the **Virtualization** node of the **REPORTS BY FUNCTION** tree.

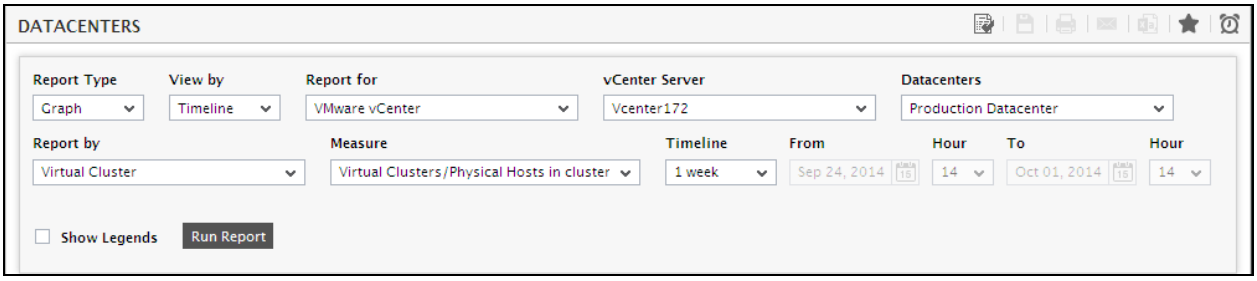


Figure 9.130: Selecting the criteria for the Datacenters report

2. When Figure 9.130 appears, first, indicate the **Report Type**. For a graphical representation of cluster performance, select the **Graph** option; for tabulated performance results, select the **Data** option. By default, the **Graph** option is chosen.
3. If the **Report Type** is **Graph**, you would have to select an option from the **View by** list to indicate the graph type to be used for plotting performance data - select the **Timeline** option, so that the values reported by the chosen **Measure** are plotted in time-of-day line graphs; select the **Distribution** option, so that the report represents performance data in distribution pie charts and bar graphs. The default selection is **Timeline**.
4. Next, specify which vCenter component the report is meant for - currently, reports can be generated for VMware vCenter only. Therefore, this option is chosen by default in the **Report for** list.
5. From the **vCenter Server** list, select the vCenter server for which the report is to be generated.
6. All the datacenters managed by the chosen **vCenter Server** will be then available for selection in the **Datacenters** list. Select the datacenter for which the report is to be generated.
7. Next, from the **Report by** list, select the datacenter element for which the report is to be generated. If the report is to focus on the performance of the datastores within the datacenter, select the **Datastores** option. If the report should reveal how well the ESX servers included in the datacenter are performing, then, select the **Physical Servers** option. To ensure that the report indicates the service levels achieved by the VMs executing on

the ESX servers within the datacenter, select the **Virtual Machines** option. For cluster-related performance information, select the **Virtual Clusters** option.

8. Then, pick the **Measure** for which the report is to be generated. Note that the options in the **Measure** list will change according to the **Report by** selection.
9. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

10. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.131). The steps below discuss each of these settings and how they can be customized.

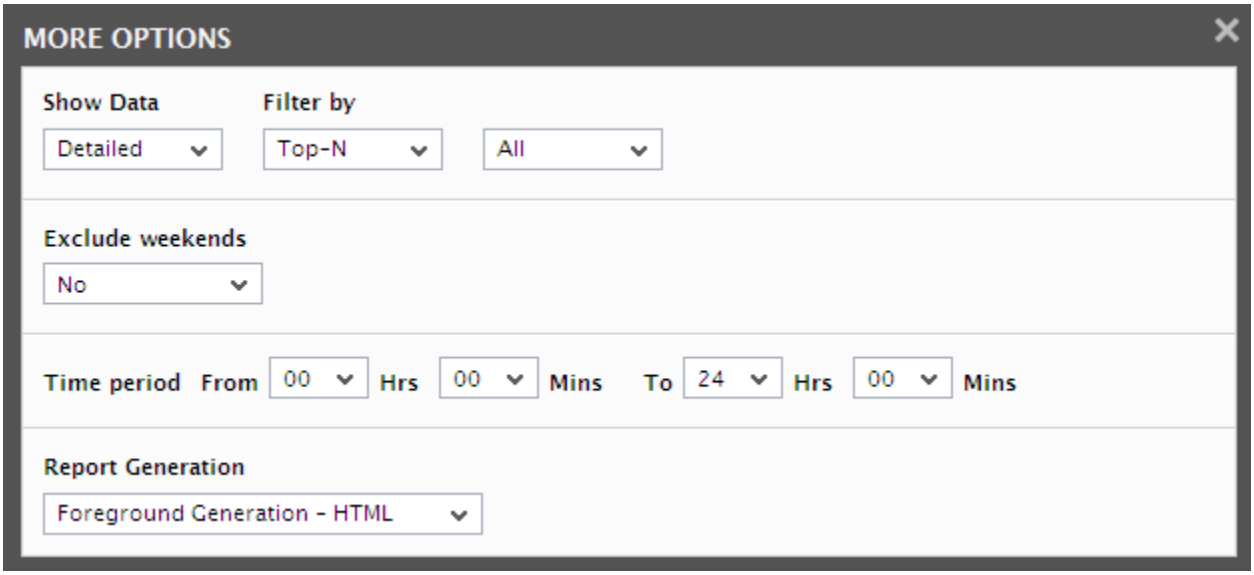


Figure 9.131: The default settings for generating the Datacenters report

11. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.131. By default, the **Detailed** option is selected in Figure 9.131 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

   - Login to the eG administrative interface as 'admin'.
   - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
   - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

12. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_CENTER]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

13. Next, indicate the report **Time period**.
14. You can further filter the resultset of your report picking one of the following options from the **Filter by** list:
    - **TOP-N** - Select this option and pick a **TOP-N** or a **LAST-N** option from the drop-down list adjacent to it to ensure that the resulting graph only plots the values of the specified number of **TOP** / **LAST** players in the chosen performance arena.
    - **Range** - Pick this option and provide a value range in the **From** and **To** text boxes that appear alongside.
    - **Greaterthan** - Pick this option and provide a value in the text box that appears alongside to view the details of only those resource pools which have registered a value greater than the value specified in that box for the chosen **Measure**.
    - **Lessthan** - Pick this option and provide a value in the text box that appears alongside to view the details of only those resource pools which have registered a value lesser than the value specified in that box for the chosen **Measure**.
15. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

16. If the **Report Type** is **Graph**, then, you can ensure that the resulting graphical report is not crowded with the performance data pertaining to too many datacenter elements (depending upon the option chosen from the **Report by** list) in the cluster. You can therefore restrict the number of elements to be represented in the graph by selecting an option from the **Filter by** list. If the **Top-N** option is chosen, then you can select an option from the adjacent list to indicate the number of top components in the chosen performance arena (i.e., **Measure**) for which performance data needs to be plotted in the **Graph** report. If the **Range** option is chosen, then you would have to indicate a value range using the **From** and **To** text boxes; the report will include only those elements in the cluster for which the chosen **Measure** reports values in the specified range. If the **Greater than** option is chosen from the **Filter by** list, then, in the adjacent text box, you will have to specify a valid number; in this case, the report will include only those elements for which the chosen **Measure** has reported a value greater than the specified number. Similarly, if the **Less than** option is chosen from the **Filter by** list, then, in the adjacent text box, you will have to specify a valid number; in this case, the report will include only those elements for which the chosen **Measure** has reported a value lesser than the specified number.

The **Filter by** list will include only the **Top-N** option if **View by** is set to **Distribution**. However, for a **Timeline** report (i.e., if **View by** is set to **Timeline**), the **Filter by** list provides the **Top-N**, **Range**, **Greater than** and **Less than** options.

17. Finally, click the **Run Report** button.
18. If the **Report Type** is **Graph**, the **View by** selection is **Timeline**, the **Report by** selection is **Virtual Clusters**, and the **Report Generation** mode is **Foreground Generation - HTML**, then clicking the **Run Report** button will reveal Figure 9.132, using which you can compare the performance of the chosen **Measure** across the clusters configured within the chosen datacenter during the specified **Timeline**; the time-of-day variations in the resource usage by the clusters can thus be analyzed, the times when usage peaked can be detected, and resource-intensive clusters can be accurately identified.

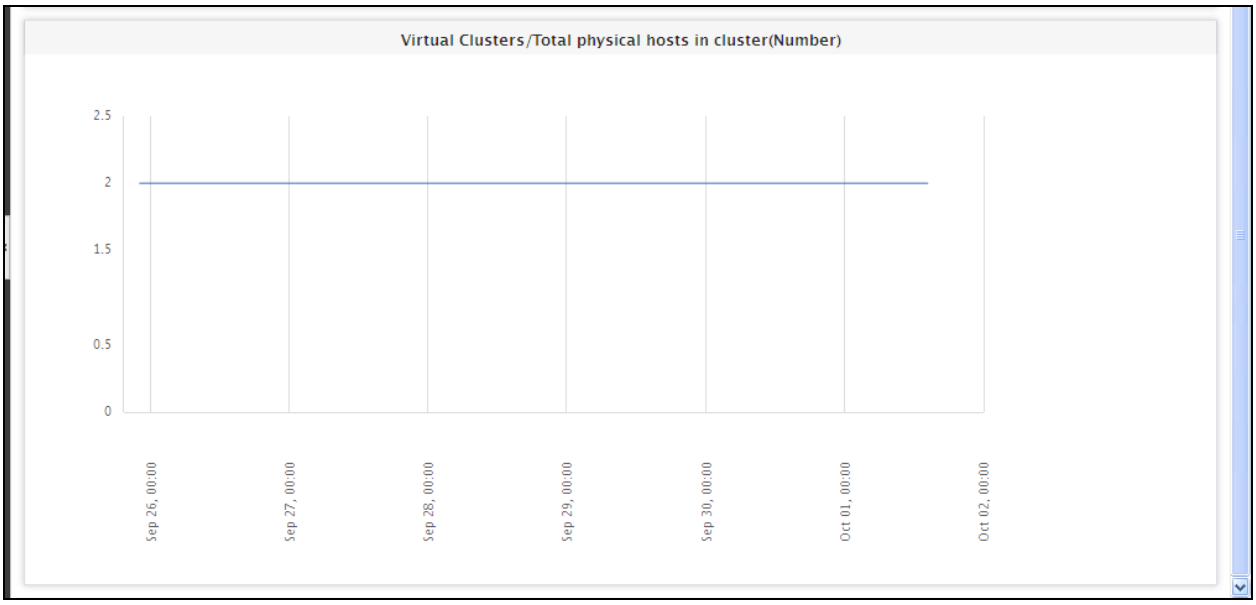


Figure 9.132: A Timeline graph of a Datacenters report focusing on cluster performance

19. If the **Report Type** is **Graph**, the **View by** selection is **Timeline**, the **Report by** selection is **Physical servers**, and the **Report Generation** mode is **Foreground Generation - HTML**, then clicking the **Run Report** button will reveal Figure 9.133, using which you can compare the performance of the chosen **Measure** across the ESX servers included in the datacenter; the time-of-day variations in the resource usage by the ESX servers can thus be analyzed, sudden spikes in usage and the time of occurrence can be isolated, and resource-intensive servers can be accurately identified.

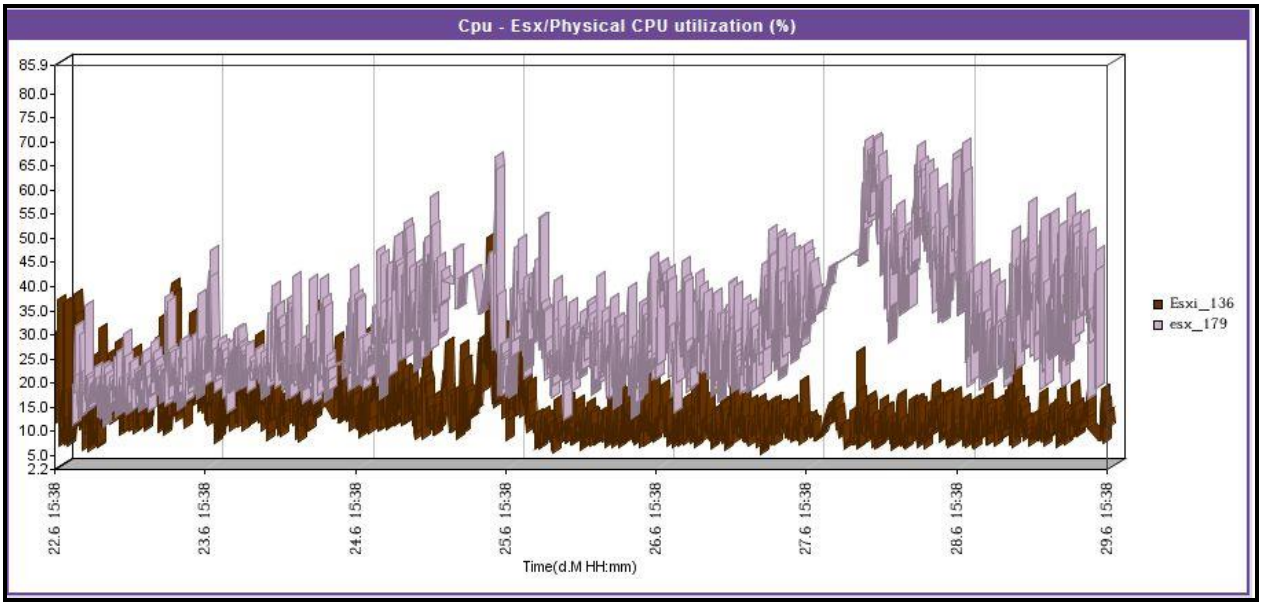


Figure 9.133: A Timeline graph of a Datacenters report focusing on Physical Server performance

20. If the **Report Type** is **Graph**, the **View by** selection is **Timeline**, the **Report by** selection is **Virtual Machines**, and the **Report Generation** mode is **Foreground Generation - HTML**, then clicking the **Run Report** button will reveal Figure 9.134, using which you can compare the performance of the chosen **Measure** across the virtual machines

executing on all ESX servers included in the datacenter; the time-of-day variations in the resource usage by the VMs can be analyzed, sudden spikes in usage and the time of occurrence can be isolated, and resource-intensive VMs can be accurately identified.

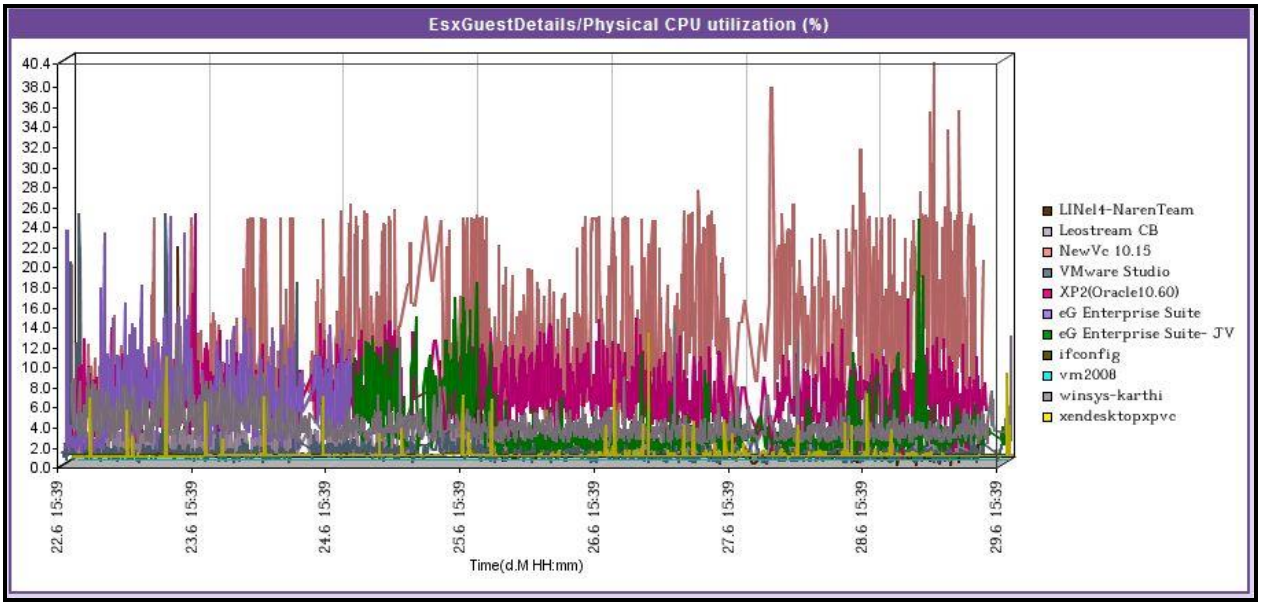


Figure 9.134: A Timeline graph of a Datacenters report focusing on the performance of VMs

21. If the **Report Type** is **Graph**, the **View by** selection is **Timeline**, the **Report by** selection is **Datastores**, and the **Report Generation** mode is **Foreground Generation - HTML**, then clicking the **RUN REPORT BUTTON** will reveal Figure 9.135, using which you can compare the performance of the chosen **Measure** across all datastores in the datacenter; the time-of-day variations in the availability/space usage by the datastores can be analyzed, sudden spikes in usage and the time of occurrence can be isolated, and datastores that are running out of space can be accurately identified.

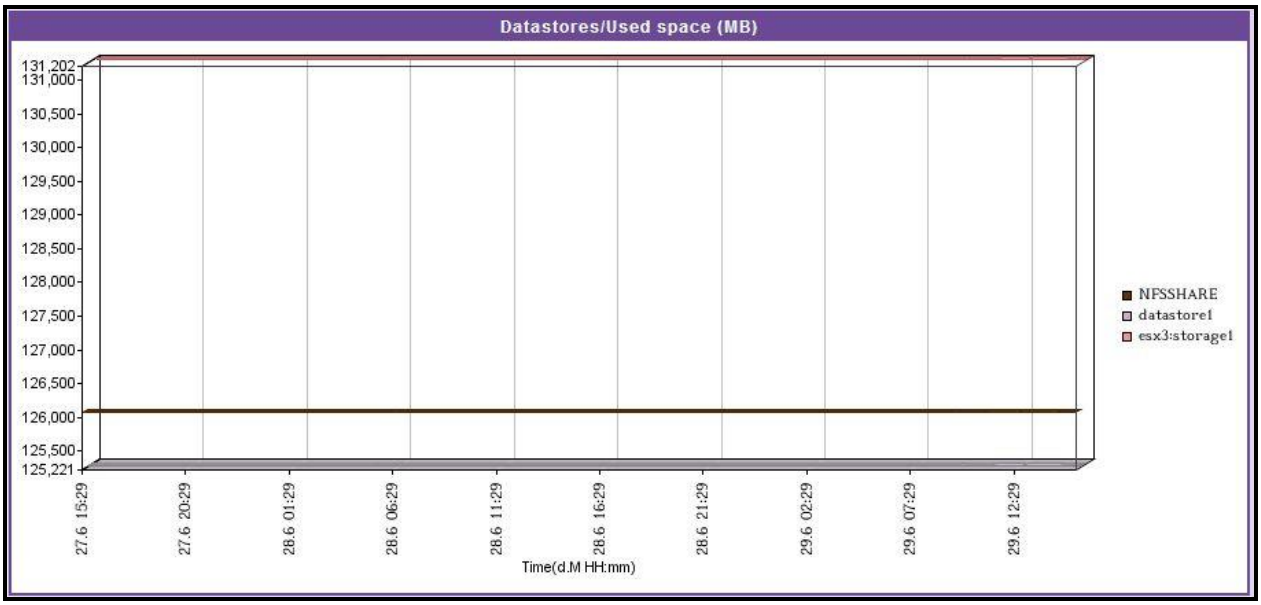


Figure 9.135: A Timeline graph of a Datacenters report focusing on the performance of datastores

22. On the other hand, if the **Report Type** is **Graph**, the **View by** selection is **Distribution**, the **Report by** selection is **Virtual Clusters**, and the **Report Generation** mode is **Foreground Generation - HTML**, then clicking the **RUN REPORT BUTTON** will reveal Figure 9.136. Figure 9.136 reveals a distribution pie chart that depicts the number of clusters in the datacenter that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Physical Cpu available to cluster* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Physical Cpu available to cluster* - alone is calculated for every cluster in the chosen datacenter. The resulting pie chart enables administrators to deduce, at a glance, the number of clusters where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the clusters that fall within the value range represented by that slice (see Figure 9.137). Against every cluster, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A vCenter-level **Summary** of the chosen **Measure** will also be available.

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[VIRTUAL_CENTER]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

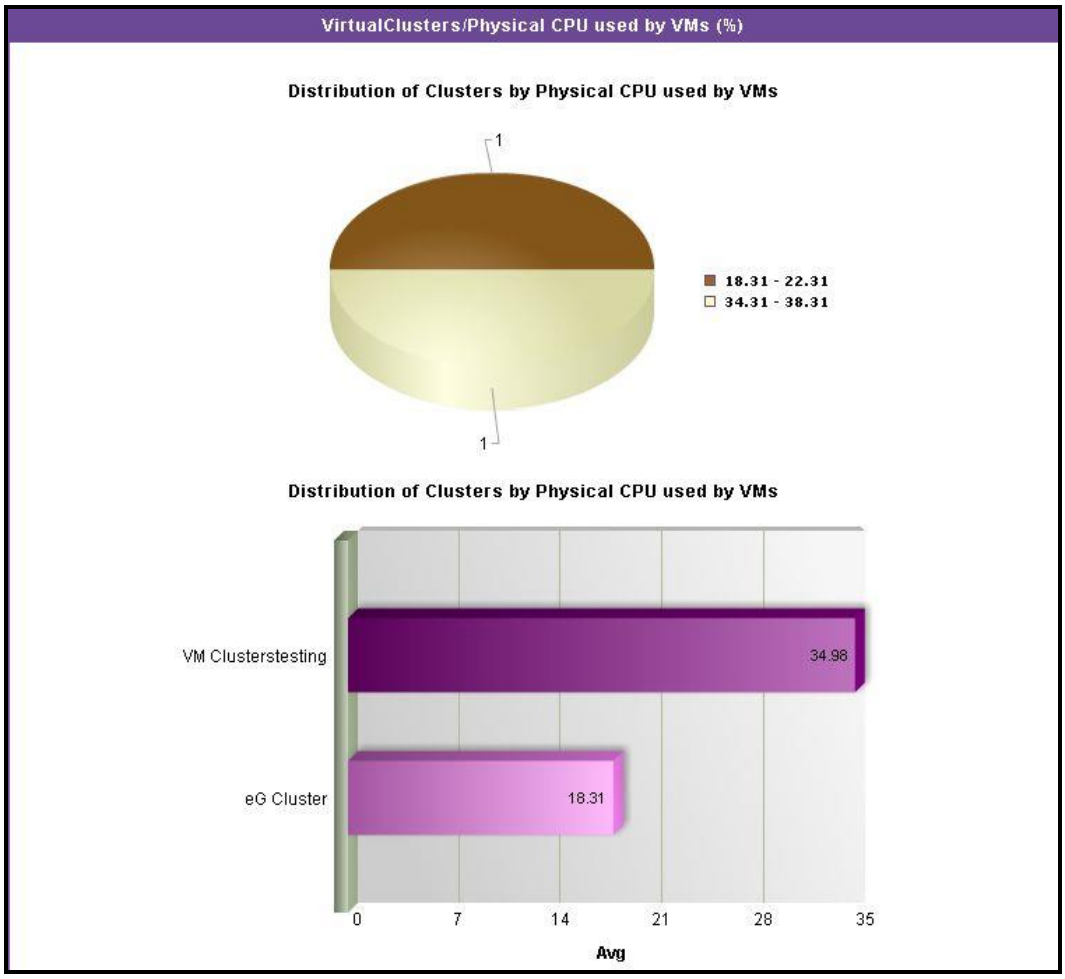


Figure 9.136: A distribution graph in the Datacenters report focusing on cluster performance

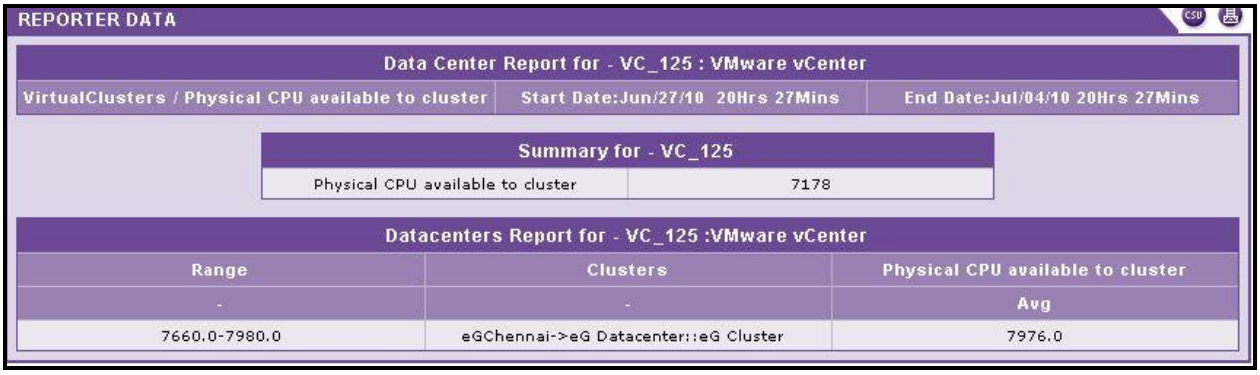


Figure 9.137: The clusters that fall within the usage range clicked on

23. Below the pie chart, you will find a bar chart that indicates the clusters that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Physical CPU available to cluster* measure, this bar chart reveals the clusters to which maximum physical CPU is available for use. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[VIRTUAL_CLUSTER]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[VIRTUAL_CLUSTER]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

Note

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

Note

The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, select **Top-N** from the **Filter by** list in Figure 9.131, and pick an option from the adjacent drop-down list.

24. Similarly, if the **Report Type** is **Graph**, the **View by** selection is **Distribution**, the **Report by** selection is **Physical Servers**, and the **Report Generation** mode is **Foreground Generation - HTML**, then, clicking the **RUN REPORT BUTTON** will reveal Figure 9.138. Figure 9.138 reveals a distribution pie chart that depicts the number of ESX servers in the datacenter that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Physical CPU utilization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Physical CPU utilization* - alone is calculated for every ESX server in the chosen **Datacenter**. The resulting pie chart enables administrators to deduce, at a glance, the number of ESX servers where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the ESX servers that fall within the value range represented by that slice (see Figure 9.139). Against every ESX server, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A vCenter-level **Summary** of the chosen **Measure** will also be available.

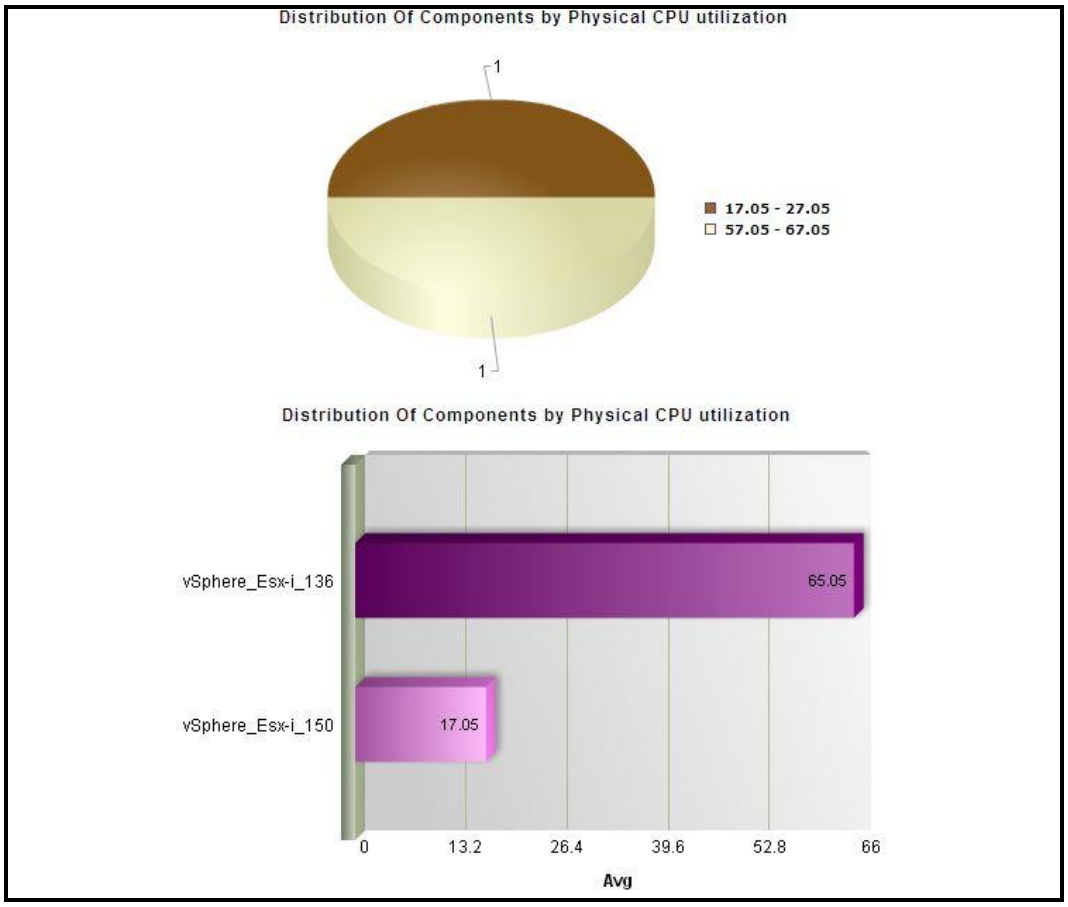
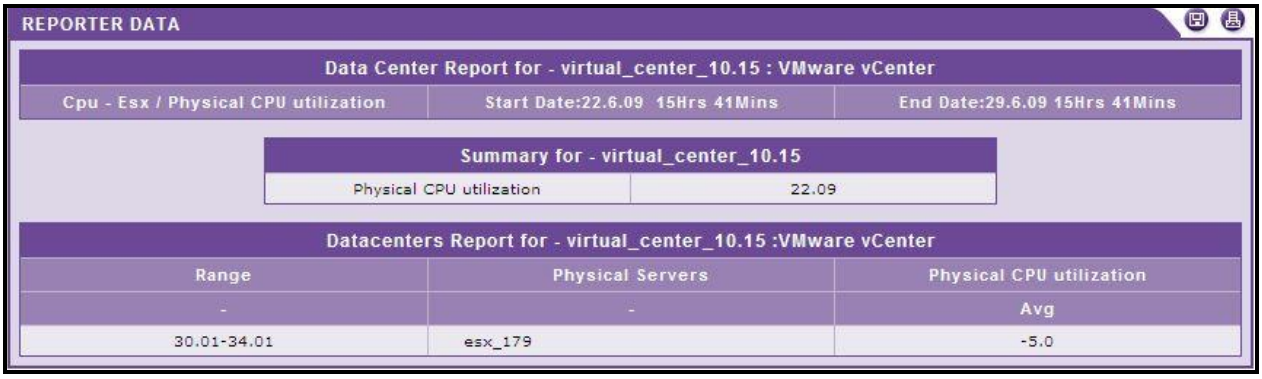


Figure 9.138: A distribution graph in the Datacenters report focusing on physical server performance



REPORTER DATA

Data Center Report for - virtual_center_10.15 : VMware vCenter		
Cpu - Esx / Physical CPU utilization	Start Date:22.6.09 15Hrs 41Mins	End Date:29.6.09 15Hrs 41Mins

Summary for - virtual_center_10.15	
Physical CPU utilization	22.09

Datacenters Report for - virtual_center_10.15 :VMware vCenter		
Range	Physical Servers	Physical CPU utilization
-	-	Avg
30.01-34.01	esx_179	-5.0

Figure 9.139: The physical servers that fall within the usage range clicked on

25. Adjacent to the pie chart, you will find a bar chart that indicates the ESX servers that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Physical CPU utilization* measure, this bar chart reveals the ESX servers in the datacenter that have the maximum free memory. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

26. Likewise, if the **Report Type** is **Graph**, the **View by** selection is **Distribution**, the **Report by** selection is **Virtual Machines**, and the **Report Generation** mode is **Foreground Generation - HTML**, then clicking the **Run Report**

button will reveal Figure 9.140. Figure 9.140 reveals a distribution pie chart that depicts the number of VMs in the cluster that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Physical CPU utilization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Physical CPU utilization* - alone is calculated for every VM in the chosen **Cluster**. The resulting pie chart enables administrators to deduce, at a glance, the number of VMs where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the VMs that fall within the value range represented by that slice (see Figure 9.141). Against every VM name, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A vCenter-level **Summary** of the chosen **Measure** will also be available.

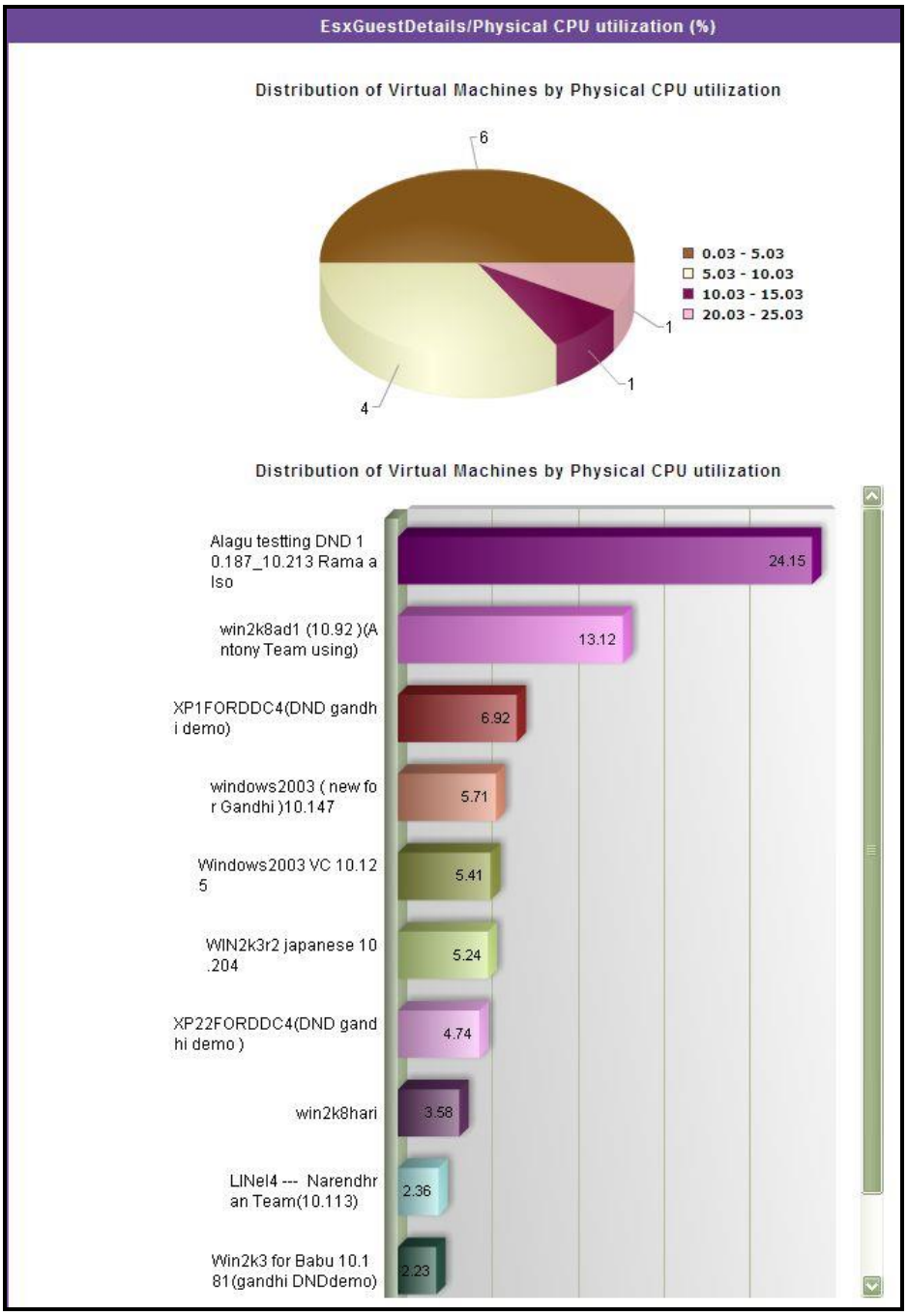
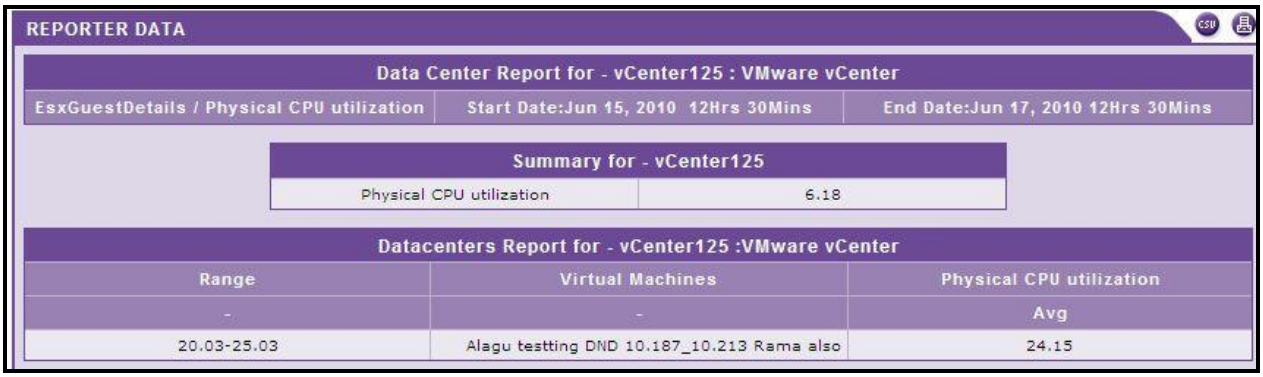


Figure 9.140: A distribution graph in the Datacenters report focusing on virtual machine performance



REPORTER DATA

Data Center Report for - vCenter125 : VMware vCenter

EsxGuestDetails / Physical CPU utilization	Start Date:Jun 15, 2010 12Hrs 30Mins	End Date:Jun 17, 2010 12Hrs 30Mins

Summary for - vCenter125

Physical CPU utilization	6.18

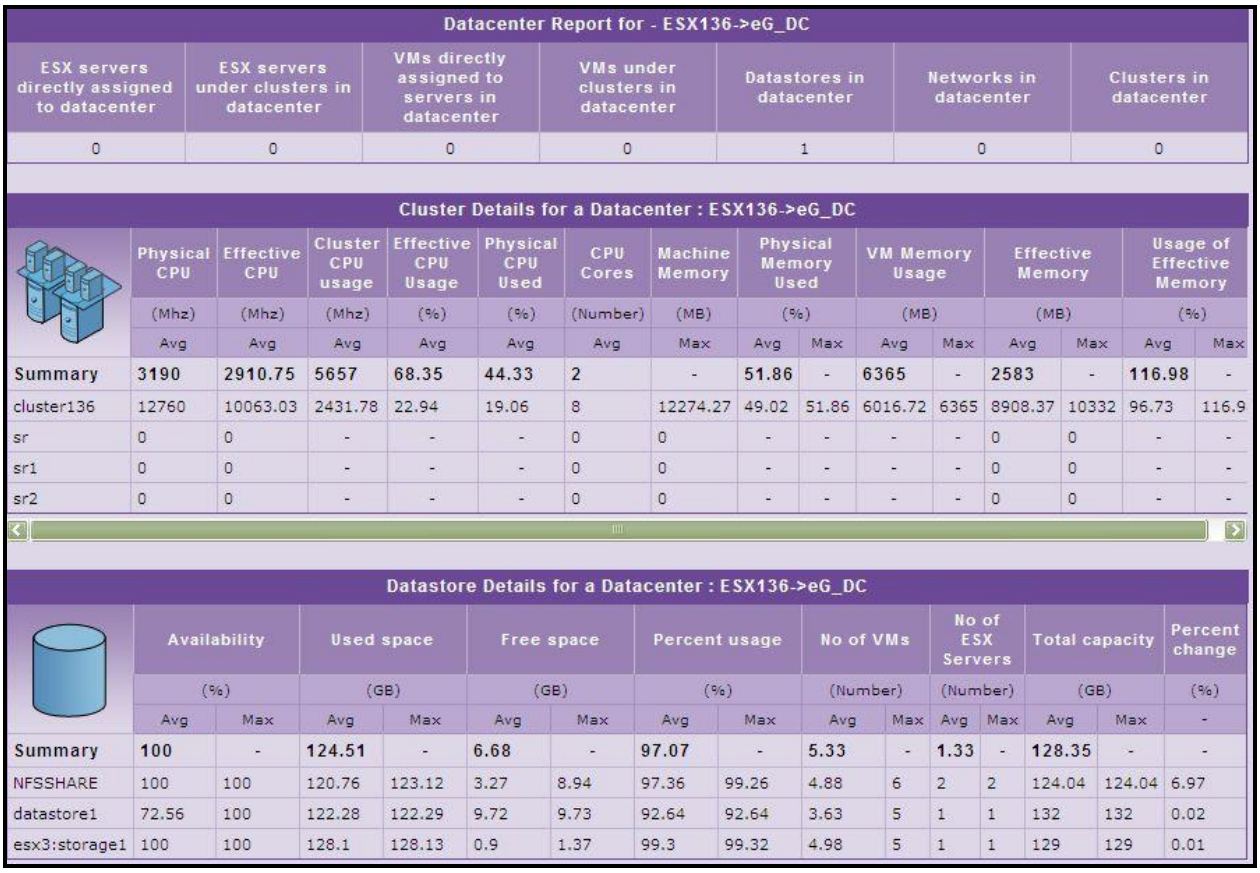
Datacenters Report for - vCenter125 :VMware vCenter

Range	Virtual Machines	Physical CPU utilization
-	-	Avg
20.03-25.03	Alagu testting DND 10.187_10.213 Rama also	24.15

Figure 9.141: The virtual machines that fall within the usage range clicked on

27. Adjacent to the pie chart, you will find a bar chart that indicates the VMs that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Physical CPU utilization* measure, this bar chart reveals the VMs in the datacenter that have consumed the physical CPU excessively. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

28. If **Data** is chosen as the **Report Type**, then, the **View by** list will no longer appear. Instead, just proceed to select the **vCenter Server** for which the report is to be generated and the **Datacenter** to which the report should pertain. Finally, provide a **Time period** and **Timeline** for the report, set the **Report Generation** mode to **Foreground Generation - HTML**, and click the **Run Report** button.



Datacenter Report for - ESX136->eG_DC

ESX servers directly assigned to datacenter	ESX servers under clusters in datacenter	VMs directly assigned to servers in datacenter	VMs under clusters in datacenter	Datastores in datacenter	Networks in datacenter	Clusters in datacenter
0	0	0	0	1	0	0

Cluster Details for a Datacenter : ESX136->eG_DC

	Physical CPU	Effective CPU	Cluster CPU usage	Effective CPU Usage	Physical CPU Used	CPU Cores	Machine Memory	Physical Memory Used		VM Memory Usage		Effective Memory		Usage of Effective Memory	
	(Mhz)	(Mhz)	(Mhz)	(%)	(%)	(Number)	(MB)	(%)		(MB)		(MB)		(%)	
	Avg	Avg	Avg	Avg	Avg	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Summary	3190	2910.75	5657	68.35	44.33	2	-	51.86	-	6365	-	2583	-	116.98	-
cluster136	12760	10063.03	2431.78	22.94	19.06	8	12274.27	49.02	51.86	6016.72	6365	8908.37	10332	96.73	116.9
sr	0	0	-	-	-	0	0	-	-	-	-	0	0	-	-
sr1	0	0	-	-	-	0	0	-	-	-	-	0	0	-	-
sr2	0	0	-	-	-	0	0	-	-	-	-	0	0	-	-

Datastore Details for a Datacenter : ESX136->eG_DC

	Availability		Used space		Free space		Percent usage		No of VMs		No of ESX Servers		Total capacity		Percent change
	(%)		(GB)		(GB)		(%)		(Number)		(Number)		(GB)		(%)
	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max	-
Summary	100	-	124.51	-	6.68	-	97.07	-	5.33	-	1.33	-	128.35	-	-
NFSSHARE	100	100	120.76	123.12	3.27	8.94	97.36	99.26	4.88	6	2	2	124.04	124.04	6.97
datastore1	72.56	100	122.28	122.29	9.72	9.73	92.64	92.64	3.63	5	1	1	132	132	0.02
esx3:storage1	100	100	128.1	128.13	0.9	1.37	99.3	99.32	4.98	5	1	1	129	129	0.01

Figure 9.142: The Datacenters Report of type Data

29. For a particular datacenter, Figure 9.142 provides a **Datacenter Report** section that displays a default set of metrics revealing the general composition of the datacenter. Below this section, a **Cluster Details** section exists, that helps analyze user-configured metrics related to the resource usage of individual clusters in the datacenter. Under this section is the **Datastore Details** section, using which the availability and space usage of each datastore in the datacenter can be analyzed. In addition to providing an overview of datacenter health, these sections also help identify the resource-intensive clusters and datastores in the datacenter, which might be adversely impacting the performance of the datacenter as a whole.

30. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the icon in that page.

As stated earlier, the **Datacenter Details** section of the **Data** report displays a default set of metrics; this default setting cannot be modified - i.e., additional metrics cannot be added or existing metrics cannot be removed from this section. However, the metrics displayed in the **Cluster Details** and **Datastore Details** section are configurable.

To add new metrics to the **Cluster Details** section, do the following:

1. Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.

2. In the **[VIRTUAL_CENTER]** section of the file, you will find entries of the following format for every measure that appears by default in the **Cluster Details** section:

   Virtual_center:Virtual_cluster:VCClusterTest:<InternalMeasureName>#<DisplayName>=<Comma-separated list of functions>

   To add a new measure, append an entry of the above format to the same section. For instance, if the *Physical CPU available to cluster* measure is to be added to the **Cluster Details** section, then, your specification should be:

   Virtual_center:Virtual_cluster:VCClusterTest:Tot_phy_cpu_available#Physical CPU=Avg,Max

3. Similarly, multiple measures can be added. To know the internal names of tests and measures, follow the steps discussed in Page 212 of this document.

4. Finally, save the file.

To add new metrics to the **Datastore Details** section, do the following:

1. Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.

2. In the **[VIRTUAL_CENTER]** section of the file, you will find entries of the following format for every measure that appears by default in the **Datastore Details** section:

   Virtual_center:Data_store:VCDatastoreTest:<InternalMeasureName>#<DisplayName>=<Comma-separated list of functions>

   To add a new measure, append an entry of the above format to the same section. For instance, if the *Percent usage* measure is to be added to the **Datastore Details** section, then, your specification should be:

   Virtual_center:Data_store:VCDatastoreTest:Percent_usage#Percent spcac usage=Avg,Max

3. Similarly, multiple measures can be added. To know the internal names of tests and measures, follow the steps discussed in Page 212 of this document.

4. Finally, save the file.

9.20 VMotion Report

VMware VMotion® technology, unique to VMware, leverages the complete virtualization of servers, storage and networking to migrate an entire running virtual machine instantaneously from a failing/underperforming server to a healthy one, to ensure high availability of the virtual machine.

In large, mission-critical virtualized environments with hundreds of hosts and VMs, the vCenter may migrate VMs frequently and in large numbers, so as to avoid service outages and performance degradations. Administrators of such environments might therefore find it difficult to manually track the movement of the virtual machines; as a consequence, they might not be able to determine the type/status of the migration activities, or accurately identify the current location of a VM. The absence of a specialized migration monitoring mechanism also renders these administrators unable to isolate resource-hungry VMs and resource-deficient hosts in the target environment.

To address these concerns, eG Reporter allows the generation of a specialized **VMotion Report**. Using the graphical/tabulated results provided by this report, administrators can perform the following:

- Easily observe and effectively analyze the migration activity over time, and understand the types of migration that were performed during the stated time;
- Detect failed migrations, identify the user(s) responsible for the same, and diagnose the reasons for the failure;

- Track the movement of specific VMs and accurately identify their current destination;
- Instantly identify under-performing hosts and/or resource-intensive guests in the target environment, on the basis of the migration activity;

In order to enable the administrator to accomplish the above, the **VMotion Report** page allows you to generate three different types of reports, namely - the **VMotion Summary & Top N (Graph)**, **VMotion Summary & Top N (Data)**, and **VMotion Details** report.

The sections that follow will discuss each of these report types in detail.

VMotion Summary & Top N (Graph) Report and VMotion Summary & Top N (Data) Report

These two reports enable you to take stock of the extent, nature, and status of the migration activity across the environment during a given period of time. While the **VMotion Summary & Top N (Graph)** report graphically represents the migration details, the **VMotion Summary & Top N (Data)** report tabulates the same results.

Besides revealing the total number, type, and status of migrations that have taken place in the environment during the given period, these reports help determine the following:

- Which VM was migrated the maximum number of times?
- What type of migration was most common in the environment during the designated period?
- On which days was the migration activity very high?
- From which ESX host/cluster were the maximum number of migrations performed?
- To which ESX host/cluster were the maximum number of VMs migrated?
- Which VM migration failed the maximum number of times?
- From which ESX host/cluster were the maximum number of failed migrations attempted?
- The migrations to which ESX host/cluster failed often?

By periodically reviewing these results, you can identify those VMs that were migrated often, and also those ESX hosts/clusters from which VMs have been frequently moved out - since VM migration is typically driven by the resource availability with a host and the resource usage by a VM, you can accurately isolate resource-intensive VMs and unhealthy hosts/clusters with the help of this report.

To generate these reports, follow the steps given below:

1. Select **VMotion** from the **Virtualization** node of the **REPORTS BY FUNCTION** tree in the eG Reporter.

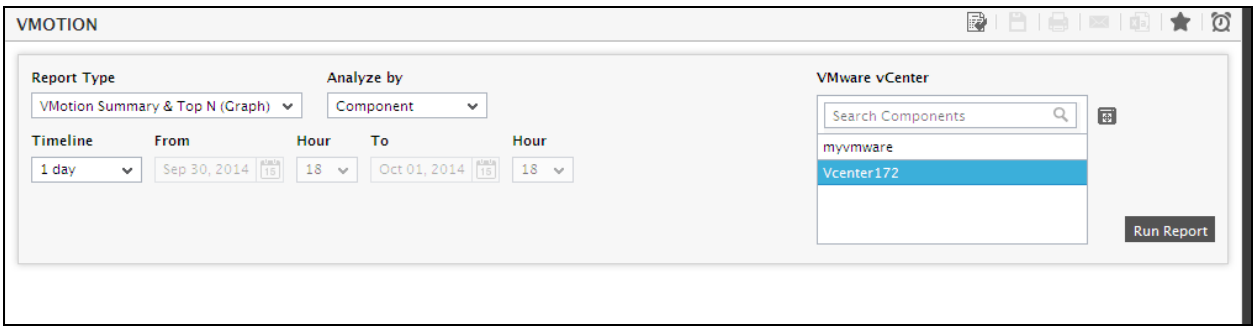


Figure 9.143: Specifying the criteria for generating a VMotions Summary Report

2. When Figure 9.143 appears, first, indicate the **Report Type**. Set **VMotion Summary & Top N (Graph)** or **VMotion Summary & Top N (Data)** as the **Report type**.

3. Next, from the **VMware vCenter** list, select the vCenter server(s) for which the migration report is to be generated. By default, all the managed vCenter servers in your environment will be listed here. This is because, the default selection from the **Analyze by** list is **Component**. You can however narrow your search by opting to view only those vCenter servers that are part of a service/segment/zone in the **VMware vCenter** list. For this, select the **Zone**, **Service**, or **Segment**, option from the **Analyze by** field:

   - Selecting the **Zone** option will allow you to select the desired zone from the **Zone** list box. To include the vCenter servers within a specific subzone also in the **VMware vCenter** list, set the **Include subzone** flag to **Yes**.
   - In the same way, to make the vCenter servers that are part of a particular segment or service available for selection in the **VMware vCenter** list, select **Service** or **Segment** from the **Analyze By** list box. Then, select the desired service or segment from the **Service** or **Segment** list.

4. If the **VMware vCenter** list consists of too many vCenter servers, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **VMware vCenter** list. The **VMWARE VCENTER** pop up window will then appear using which you can view almost all the vCenter servers in a single interface and **Select** the ones for which the report is to be generated.

5. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation. By default, **1 day** will be selected from the **Timeline** list box.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more **VMware vCenter** servers. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.144). The steps below discuss each of these settings and how they can be customized.

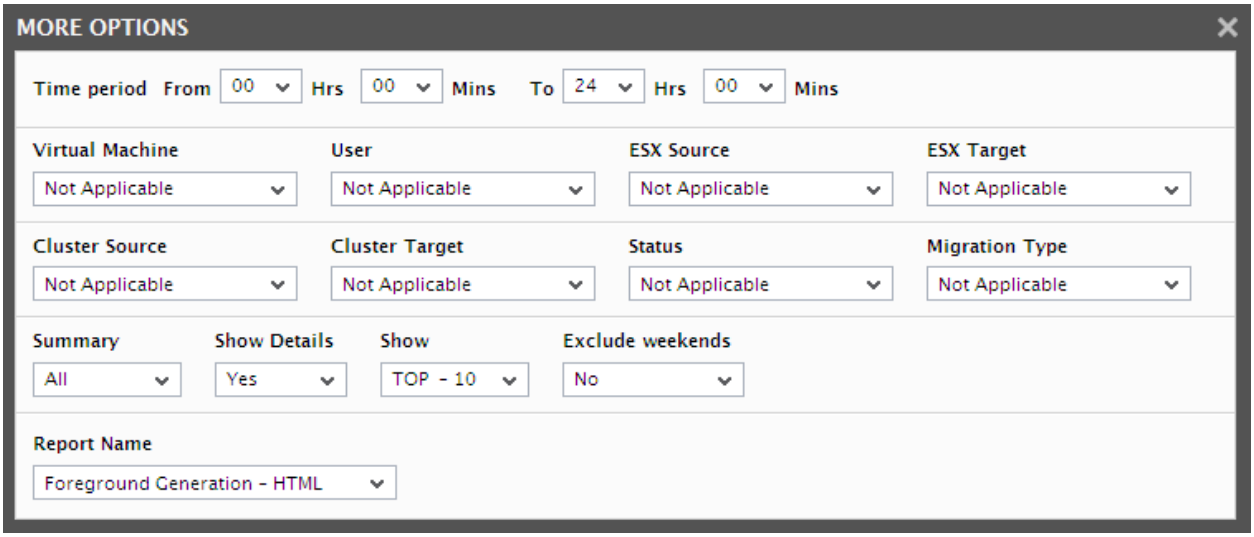


Figure 9.144: The default settings for generating the VMotion report

7. Next, indicate the report **Time period.** By default 00 Hr and 24 Min, 24 Hr and 00 Min will be selected in the **From** and **To** fields.
8. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes.** If not, select **No.**

Note

By default, the weekend constitutes Saturday and Sunday. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>**\manager\config directory.
- In the **[VIRTUAL_CENTER]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

---

9. By default, this report provides a quick summary of the migrations related to all the VMs managed by the chosen vCenter servers. Accordingly, the *All* option is chosen by default in the **Virtual Machine** list. To view a report pertaining to a particular VM instead, select a specific VM from the **Virtual Machine** list.
10. To view a report on migrations that were initiated by a specific user, select the user name from the **User** list box. The default report however pertains to all users; accordingly, the *All* option is chosen by default from the **User** list.
11. If you want to view a report on VMs that were migrated from a particular ESX server, then select the server from the **ESX Source** list. By default, this report provides the details of migrations from all ESX servers managed by the chosen vCenter server. Accordingly, the *All* option is chosen by default from the **ESX Source** list.
12. For a report on VMs that were moved to a particular ESX server, select the destination server from the **ESX Target** list. By default however, this report focuses on VM migrations to all the ESX servers managed by the

selected vCenter servers. Accordingly, the *All* option is chosen by default from the **ESX Target** list.

13. If you want to view a report on VMs that were migrated from a particular cluster, then select the cluster from the **Cluster Source** list. By default, this report provides the details of migrations from all clusters managed by the chosen vCenter server. Accordingly, the *All* option is chosen by default from the **Cluster Source** list.
14. For a report on VMs that were moved to a particular cluster, select the destination cluster from the **Cluster Target** list. By default however, this report focuses on VM migrations to all the clusters managed by the selected vCenter servers. Accordingly, the *All* option is chosen by default from the **Cluster Target** list.
15. By default, this report provides a summary of all migrations that occurred in an environment, regardless of their status. This explains why the default option chosen from the **Status** list is *All*. However, to view a report on the migrations of a particular state, select **Success** or **Failure** from the **Status** list.
16. Similarly, you can configure the report to provide the summary of migrations of a particular type, by selecting one of the following types from the **Migration Type** list:
    - **DRS**: Refers to DRS-recommended migrations
    - **Hot:** Refers to powered-on virtual machines moved from one server to another
    - **Manual:** Refers to powered-off or suspended virtual machines moved from one server to another

    By default however, this report provides migration summaries for all types of migrations; accordingly, the *All* option is chosen by default from the **Migration Type** list.
17. By default, every **VMotion Summary** report (be it **Graph** or **Data**) generated using this page includes a **VMotion Migration Summary Details** section that provides an environment-wide overview of the migration activity during the specified **Timeline**. You can however, optionally configure this report to include a few/more additional summary sections that focus on a particular aspect of migration, namely - the VM, the source ESX host, the target ESX host, the source cluster, and the target cluster. By choosing an option from the **Summary** list box, you can indicate what additional summaries the report should include:
    - **VM** : If the *All* option is chosen from the **Virtual Machine** list and the **Show Details** flag is set to **Yes**, then, selecting the **VM** option from the **Summary** list ensures that the report includes additional sections that provide a VM-level migration summary - these sections indicate the VMs that have been migrated the maximum number of times, and the VMs with the highest number of migration failures.
    - **Source ESX** : If the *All* option is chosen from the **ESX Source** list and the **Show Details** flag is set to **Yes**, then, selecting the **Source ESX** option from the **Summary** list results in a report that includes additional sections that provide a source-level migration summary - these sections indicate the ESX servers that have been the source of the maximum number of successful migrations and failed migrations.
    - **Target ESX** : If the *All* option is chosen from the **ESX Target** list and the **Show Details** flag is set to **Yes**, then, selecting the **Source ESX** option from the **Summary** list results in a report that includes additional sections that provide a migration summary with a destination-focus - these sections indicate the target ESX servers to which the highest number of VMs have been migrated and the target ESX servers with the maximum failed migrations.
    - **Source Cluster** : If the *All* option is chosen from the **Cluster Source** list and the **Show Details** flag is set to **Yes**, then, selecting the **Source Cluster** option from the **Summary** list results in a report that includes additional sections that provide a cluster-level migration summary - these sections indicate the clusters that have been the source of the maximum number of successful migrations and failed migrations.
    - **Target Cluster** : If the *All* option is chosen from the **Cluster Target** list and the **Show Details** flag is set to **Yes**, then, selecting the **Target Cluster** option from the **Summary** list results in a report that includes additional sections that indicate the target clusters to which the highest number of VMs have been migrated and the target clusters with the maximum failed migrations.

- **All** : By default, this option is chosen from the **Summary** list. In this case, if the **Show Details** flag is set to **Yes**, then, the additional sections that the report embeds will provide all the above-mentioned information.

18. By default, this report only provides an environment-wide migration summary displaying the total number of migrations that have occurred across all the chosen vCenter servers during the designated period, and the type-wise break-up of migrations. Accordingly, the **Show Details** flag is set to **No** by default. If this flag is set to **Yes** instead, then additional sections will be displayed according to the option chosen from the **Summary** list.

By default, this report provides all the filter options discussed in step 11 to step 20 above, so that you an customize the summary report to suit your needs. If need be, you can hide the filter options and thus make sure that the report displays a summary of all the migrations that occurred in the environment during the specified **Timeline**. To achieve this, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **VIRTUAL_CENTER_VMOTION** section of the file, set the **ShowFilters** flag to **false**. By default, this flag is set to **true**.
- Finally, save the file.

Once this is done, all the filter options starting from the **Virtual Machine** list box to the **Summary** list box will no longer appear in the report page. This implies that after specifying the report **Timeline**, you will have to switch to step 20 of this procedure to proceed with the report generation.

---

19. To view the report for top N items or last N items alone, select the required option from the **Show** list box. For instance, to view only the top-2 VMs that have registered the highest number of migrations during the stated period, select the **TOP-2** option from the **Show** list. By default, the **TOP - 10** option will be selected.

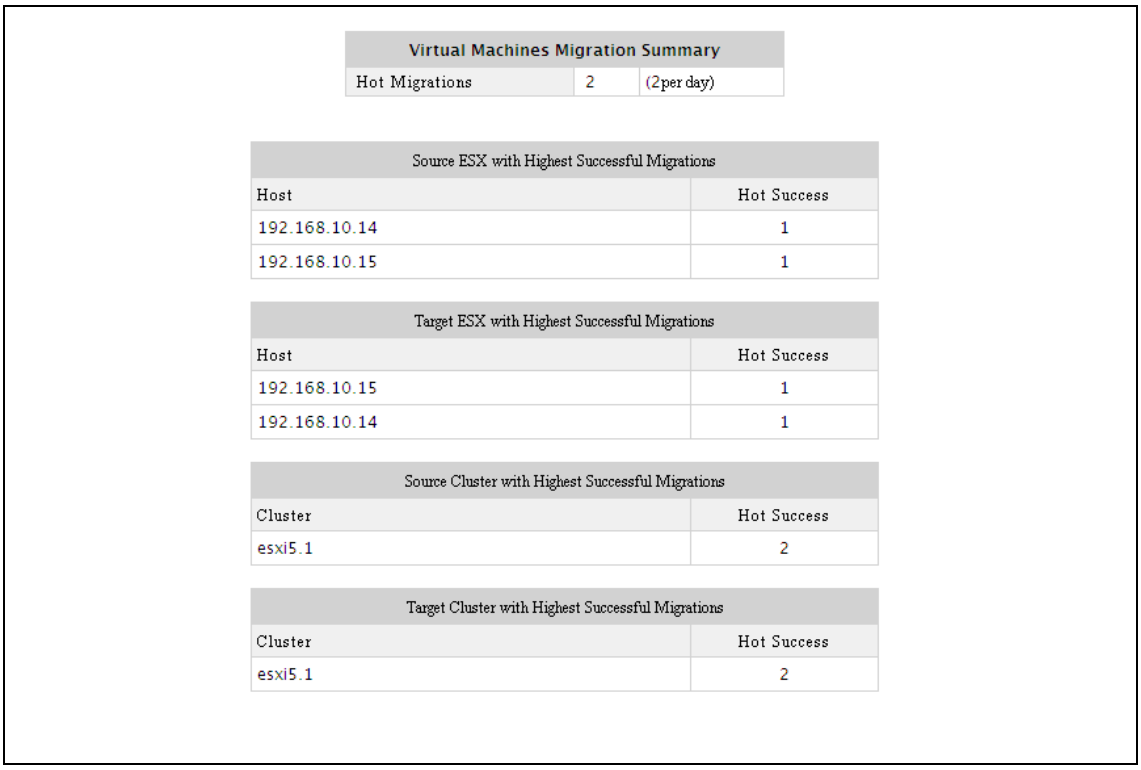
20. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

21. Finally, click on the **Run Report button**.
22. If the **Report Type** chosen is **VMotion Summary & Top N (Graph)** and the **Show Details** flag is set to **No**, then, the resulting report (see Figure 9.145) will display a **Virtual Machines Migration Summary**, which enables you to quickly receive a fair understanding of the volume of the migration activity in your environment during the specified **Timeline**. The total migrations, the number of migrations per type, and the number of failed migrations are available here.

Figure 9.145: The default VMotion Summary & Top N (Graph) report

23. Clicking on the **Total migrations** value in the **Virtual Machines Migrations Summary** table leads you to the **VMOTION DETAILS** report that provides complete details of all the migrations that occurred in the environment during the specified **Timeline**. Similarly, you can click on the number of **DRS migrations**, **Hot migrations**, **Manual migrations**, or **Failed migrations** in the table to view the details of migrations of that type.



Virtual Machines Migration Summary		
Hot Migrations	2	(2per day)

Source ESX with Highest Successful Migrations	
Host	Hot Success
192.168.10.14	1
192.168.10.15	1

Target ESX with Highest Successful Migrations	
Host	Hot Success
192.168.10.15	1
192.168.10.14	1

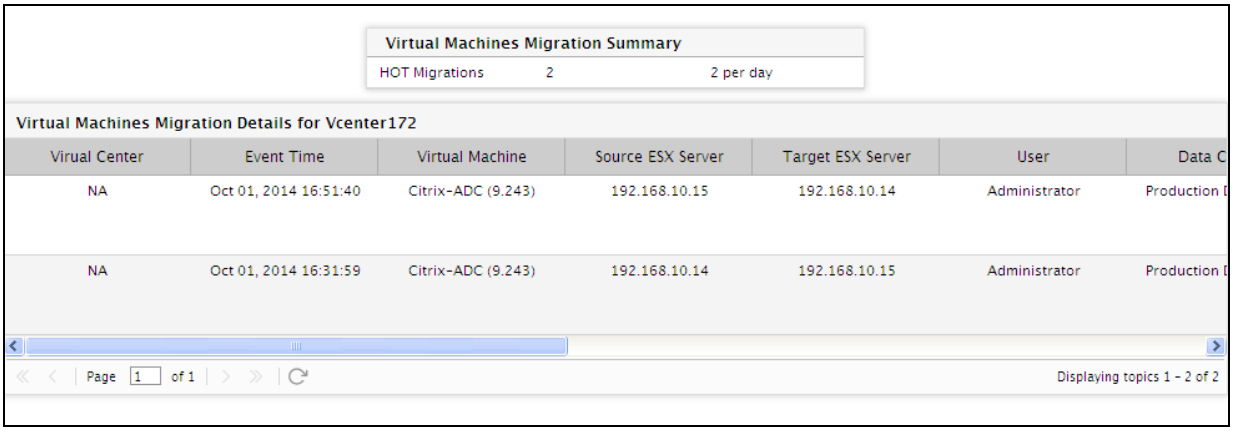
Source Cluster with Highest Successful Migrations	
Cluster	Hot Success
esxi5.1	2

Target Cluster with Highest Successful Migrations	
Cluster	Hot Success
esxi5.1	2

Figure 9.146: A VMotions Details report that provides details of all migrations that occurred in the specified Timeline

24. Below the **Virtual Machines Migration Summary** table of Figure 9.145, you will find a **Virtual Machines Migration Chart** that enables you to figure out how many migrations occurred every day during the specified **Timeline**, how many of them failed, and also the migration types. Using this chart, you can instantly identify those days on which the migration activity peaked, and the exact day on which they failed.

25. To view the complete details of the migrations of a particular type on a specific day, click on the corresponding division in the bar chart of Figure 9.146. This will invoke Figure 9.147, where you can view more details about that migration type.



Virtual Machines Migration Summary		
HOT Migrations	2	2 per day

Virtual Machines Migration Details for Vcenter172

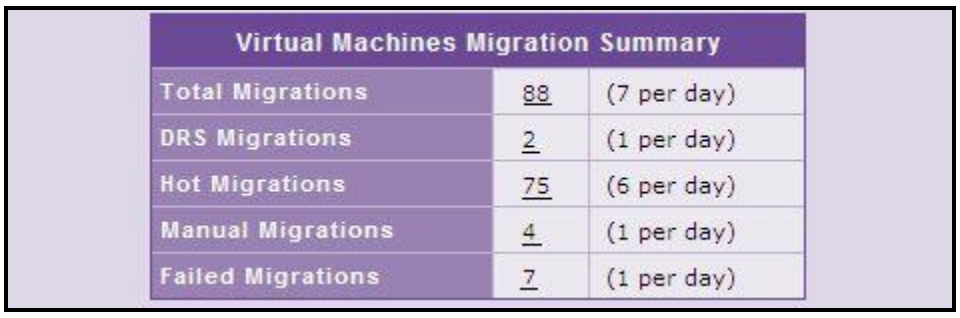
Virual Center	Event Time	Virtual Machine	Source ESX Server	Target ESX Server	User	Data C
NA	Oct 01, 2014 16:51:40	Citrix-ADC (9.243)	192.168.10.15	192.168.10.14	Administrator	Production
NA	Oct 01, 2014 16:31:59	Citrix-ADC (9.243)	192.168.10.14	192.168.10.15	Administrator	Production

Page 1 of 1 Displaying topics 1 - 2 of 2

Figure 9.147: The VMotion Details report that appears upon clicking a division in the bar chart

26. On the other hand, if the **Report Type** for the summary report is set to **VMotion Summary & Top N (Data)** and the **Show Details** flag is set to **No**, then, the resulting report will only display the **Virtual Machines Migration**

Summary table.



Virtual Machines Migration Summary		
Total Migrations	88	(7 per day)
DRS Migrations	2	(1 per day)
Hot Migrations	75	(6 per day)
Manual Migrations	4	(1 per day)
Failed Migrations	7	(1 per day)

Figure 9.148: The default VMotion Summary & Top N (Data) report

27. Now, if the **Show Details** flag is set to **Yes**, and the **VM** option is chosen from the **Summary** list, then, the **VMotion Summary & Top N (Graph)** report will additionally display 3 bar charts, and the **VMotion Summary & Top N (Data)** report will display 3 additional tables. Each of these bar charts/tables will indicate the following:

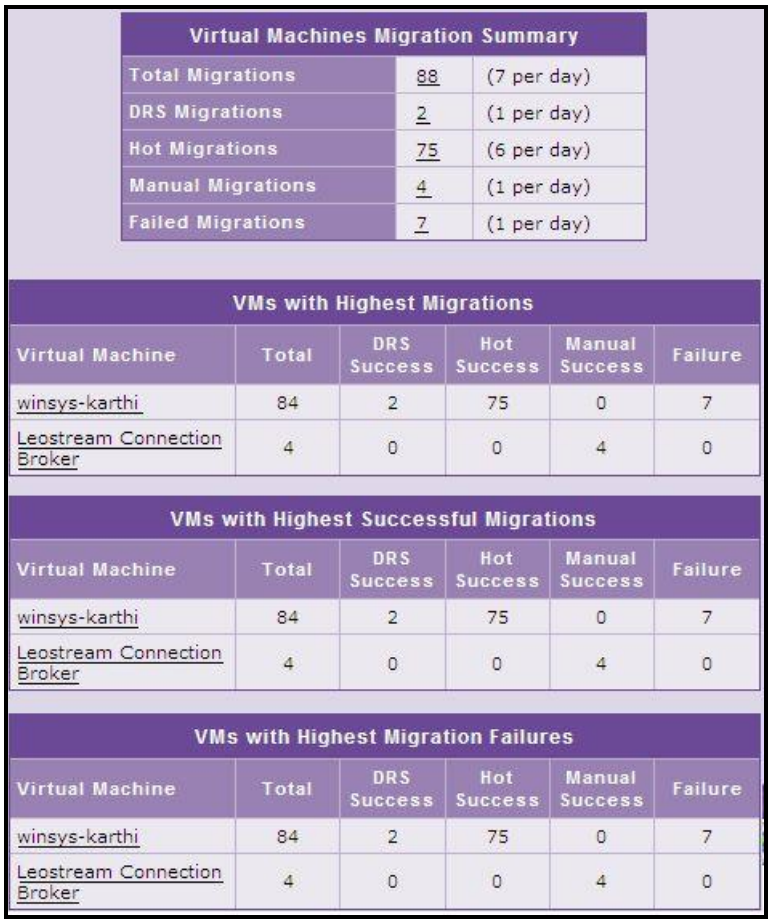
    - The VMs with the highest number of migrations;
    - The VMs with the highest number of successful migrations;
    - The VMs with the highest number of failed migrations;

    From this information, you can easily isolate resource-intensive VMs, and also instantly spot failed migration attempts.

    In case of the **VMotion Summary & Top N (Graph)** report, clicking on any division in any bar graph will allow you to zoom into the details of the migrations of that type for that VM.

    In case of the **VMotion Summary & Top N (Data)** report, clicking on any **Virtual Machine** name in the VM-related sections will take you to a **VMotion Details** report that provides the complete details of all the times that VM was migrated.

Figure 9.149: The VMotion Summary Graph report if the VM option is chosen from the Summary list



Virtual Machines Migration Summary		
Total Migrations	88	(7 per day)
DRS Migrations	2	(1 per day)
Hot Migrations	75	(6 per day)
Manual Migrations	4	(1 per day)
Failed Migrations	7	(1 per day)

VMs with Highest Migrations					
Virtual Machine	Total	DRS Success	Hot Success	Manual Success	Failure
winsys-karthi	84	2	75	0	7
Leostream Connection Broker	4	0	0	4	0

VMs with Highest Successful Migrations					
Virtual Machine	Total	DRS Success	Hot Success	Manual Success	Failure
winsys-karthi	84	2	75	0	7
Leostream Connection Broker	4	0	0	4	0

VMs with Highest Migration Failures					
Virtual Machine	Total	DRS Success	Hot Success	Manual Success	Failure
winsys-karthi	84	2	75	0	7
Leostream Connection Broker	4	0	0	4	0

Figure 9.150: The VMotion Data Report if the VM option is chosen from the Summary list

28. Similarly, if the **Show Details** flag is set to **Yes**, and the **Source ESX** option is chosen from the **Summary** list, then, the **VMotion Summary & Top N (Graph)** report will additionally display 3 bar charts, and the **VMotion Summary & Top N (Data)** report will display 3 additional tables. Each of these bar charts/tables will indicate the following:

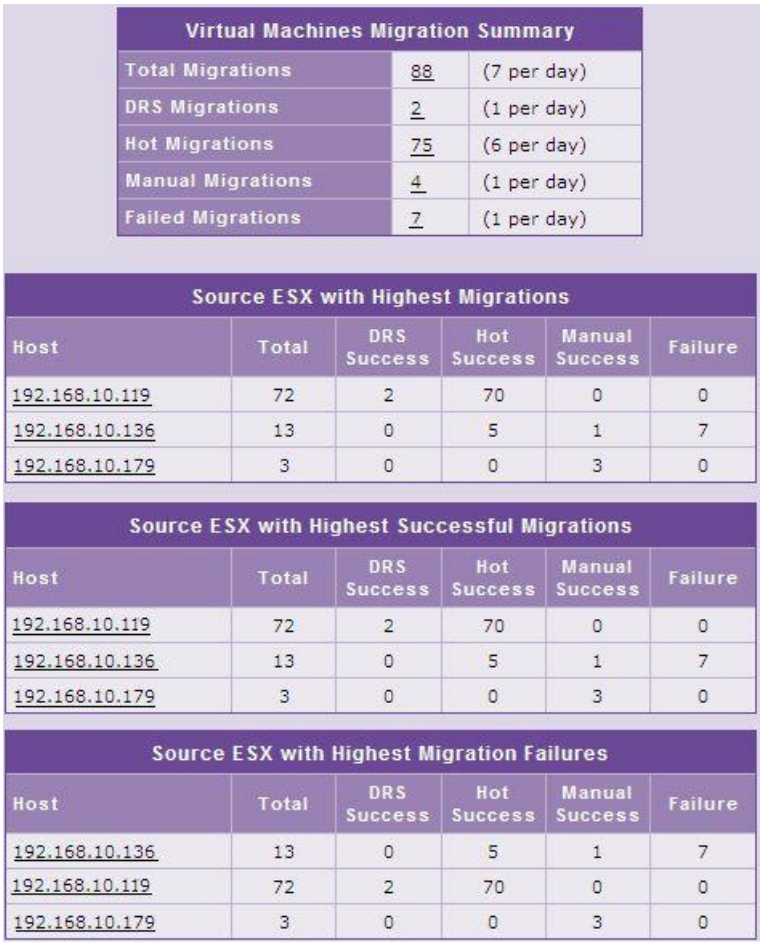
    - The ESX servers from which the highest number of migrations have been performed;
    - The ESX servers from which the highest number of successful migrations have been performed;
    - The ESX servers with the highest number of failed migrations;

    From this information, you can easily isolate hosts that are experiencing a contention for resources.

    In case of the **VMotion Summary & Top N (Graph)** report, clicking on any division in any bar graph will allow you to zoom into the details of the migrations of that type for that ESX server.

    In case of the **VMotion Sumary & Top N (Data) report**, clicking on a **Host** in the source-related tables will lead you to a **VMotion Details** report pertaining to that host.

Figure 9.151: The VMotion Summary Graph report if the Source ESX option is chosen from the Summary list



Virtual Machines Migration Summary		
Total Migrations	88	(7 per day)
DRS Migrations	2	(1 per day)
Hot Migrations	75	(6 per day)
Manual Migrations	4	(1 per day)
Failed Migrations	7	(1 per day)

Source ESX with Highest Migrations					
Host	Total	DRS Success	Hot Success	Manual Success	Failure
192.168.10.119	72	2	70	0	0
192.168.10.136	13	0	5	1	7
192.168.10.179	3	0	0	3	0

Source ESX with Highest Successful Migrations					
Host	Total	DRS Success	Hot Success	Manual Success	Failure
192.168.10.119	72	2	70	0	0
192.168.10.136	13	0	5	1	7
192.168.10.179	3	0	0	3	0

Source ESX with Highest Migration Failures					
Host	Total	DRS Success	Hot Success	Manual Success	Failure
192.168.10.136	13	0	5	1	7
192.168.10.119	72	2	70	0	0
192.168.10.179	3	0	0	3	0

Figure 9.152: The VMotion Data Report if the Source ESX option is chosen from the Summary list

29. With the **Show Details** flag set to **Yes**, if you pick the **Target ESX** option from the **Summary** list, then, the **VMotion Summary & Top N (Graph)** report will additionally display 3 bar charts, and the **VMotion Summary & Top N (Data)** report will display 3 additional tables. Each of these bar charts/tables will indicate the following:

    - The ESX servers to which VMs have been migrated the maximum number of times;
    - The ESX servers to which the highest number of successful migrations have been performed;
    - The ESX servers to which the largest number of migrations failed;

    Besides detecting failed migration attempts, this information enables you to identify ESX hosts that are healthy.

    In case of the **VMotion Summary & Top N (Graph)** report, clicking on any division in any bar graph will allow you to zoom into the details of the migrations of that type for that ESX server.

    In case of the **VMotion Summary & Top N (Data)** report, clicking on any target **Host** in the target-related sections will allow you to view the complete details of all the migrations for which that host was the target.

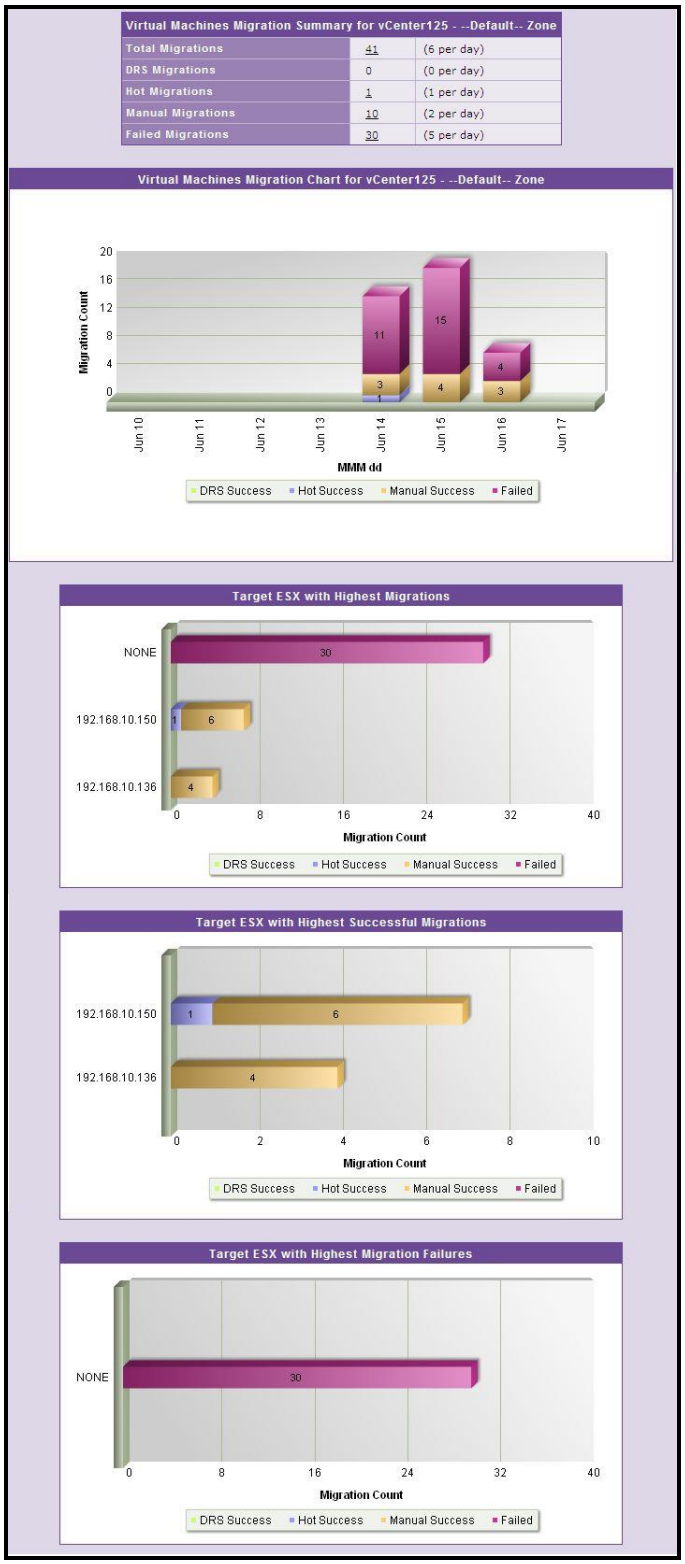
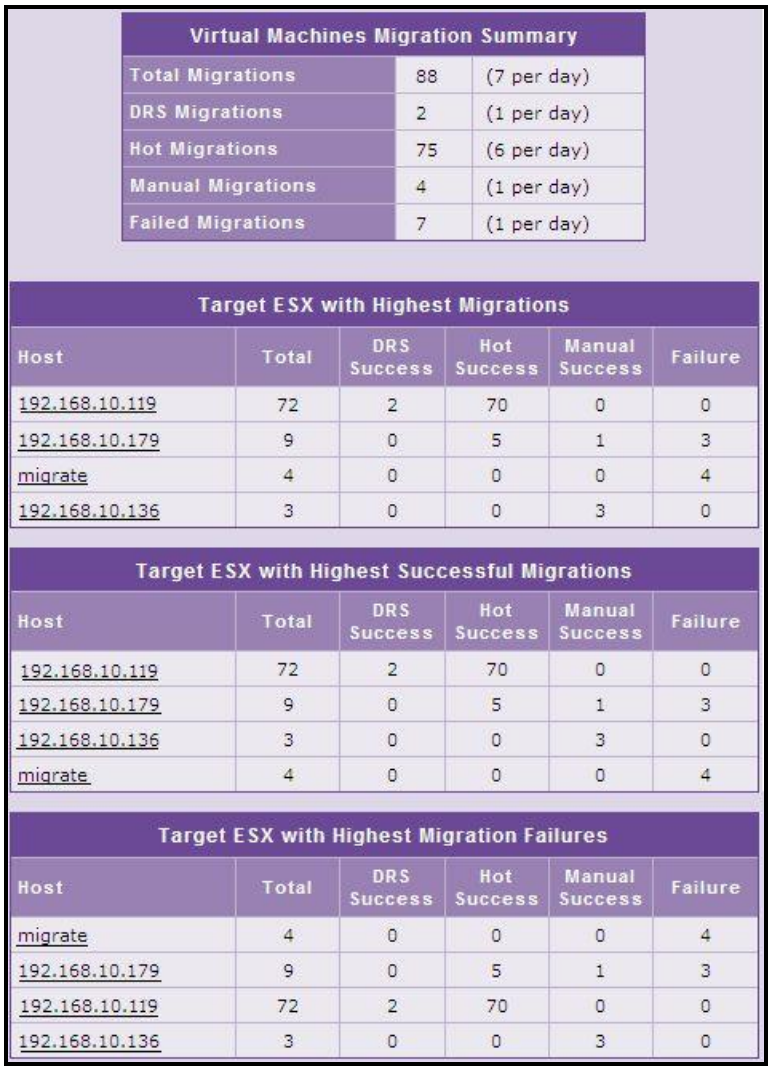


Figure 9.153: The VMotion Summary Graph report if the Target ESX option is chosen from the Summary list



Virtual Machines Migration Summary		
Total Migrations	88	(7 per day)
DRS Migrations	2	(1 per day)
Hot Migrations	75	(6 per day)
Manual Migrations	4	(1 per day)
Failed Migrations	7	(1 per day)

Target ESX with Highest Migrations					
Host	Total	DRS Success	Hot Success	Manual Success	Failure
192.168.10.119	72	2	70	0	0
192.168.10.179	9	0	5	1	3
migrate	4	0	0	0	4
192.168.10.136	3	0	0	3	0

Target ESX with Highest Successful Migrations					
Host	Total	DRS Success	Hot Success	Manual Success	Failure
192.168.10.119	72	2	70	0	0
192.168.10.179	9	0	5	1	3
192.168.10.136	3	0	0	3	0
migrate	4	0	0	0	4

Target ESX with Highest Migration Failures					
Host	Total	DRS Success	Hot Success	Manual Success	Failure
migrate	4	0	0	0	4
192.168.10.179	9	0	5	1	3
192.168.10.119	72	2	70	0	0
192.168.10.136	3	0	0	3	0

Figure 9.154: The VMotion Data Report if the Target ESX option is chosen from the Summary list

30. With the **Show Details** flag set to **Yes**, if you pick the **Source Cluster** option from the **Summary** list, then, the **VMotion Summary & Top N (Graph)** report will additionally display 3 bar charts, and the **VMotion Summary & Top N (Data)** report will display 3 additional tables. Each of these bar charts/tables will indicate the following:

    - The clusters from which VMs have been migrated the maximum number of times;
    - The clusters from which the highest number of successful migrations have been performed;
    - The clusters to which the largest number of migrations failed;

    Besides detecting failed migration attempts, this information enables you to identify unhealthy clusters.

    In case of the **VMotion Summary & Top N (Graph)** report, clicking on any division in any bar graph will allow you to zoom into the details of the migrations of that type for that cluster.

    In case of the **VMotion Summary & Top N (Data)** report, clicking on a **Source Cluster** in the source-related sections will enable you to view a **VMotion Details** report pertaining to that cluster.

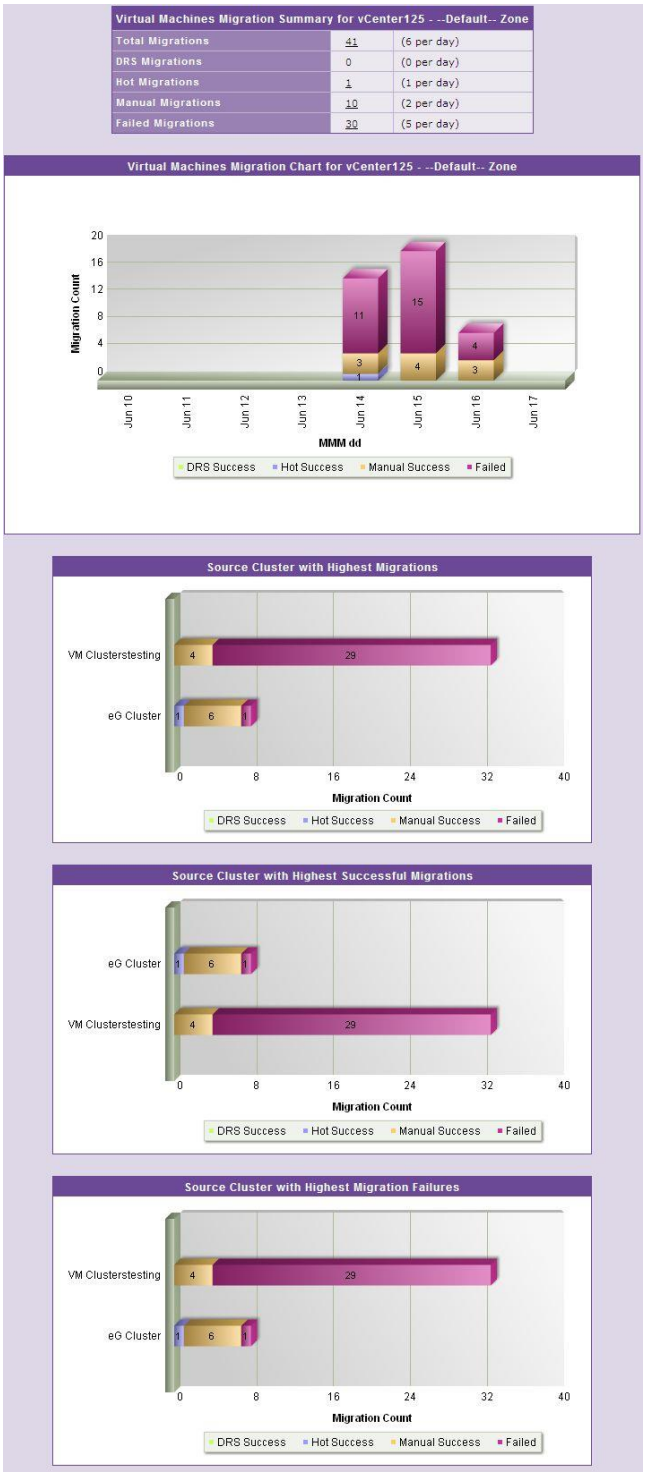
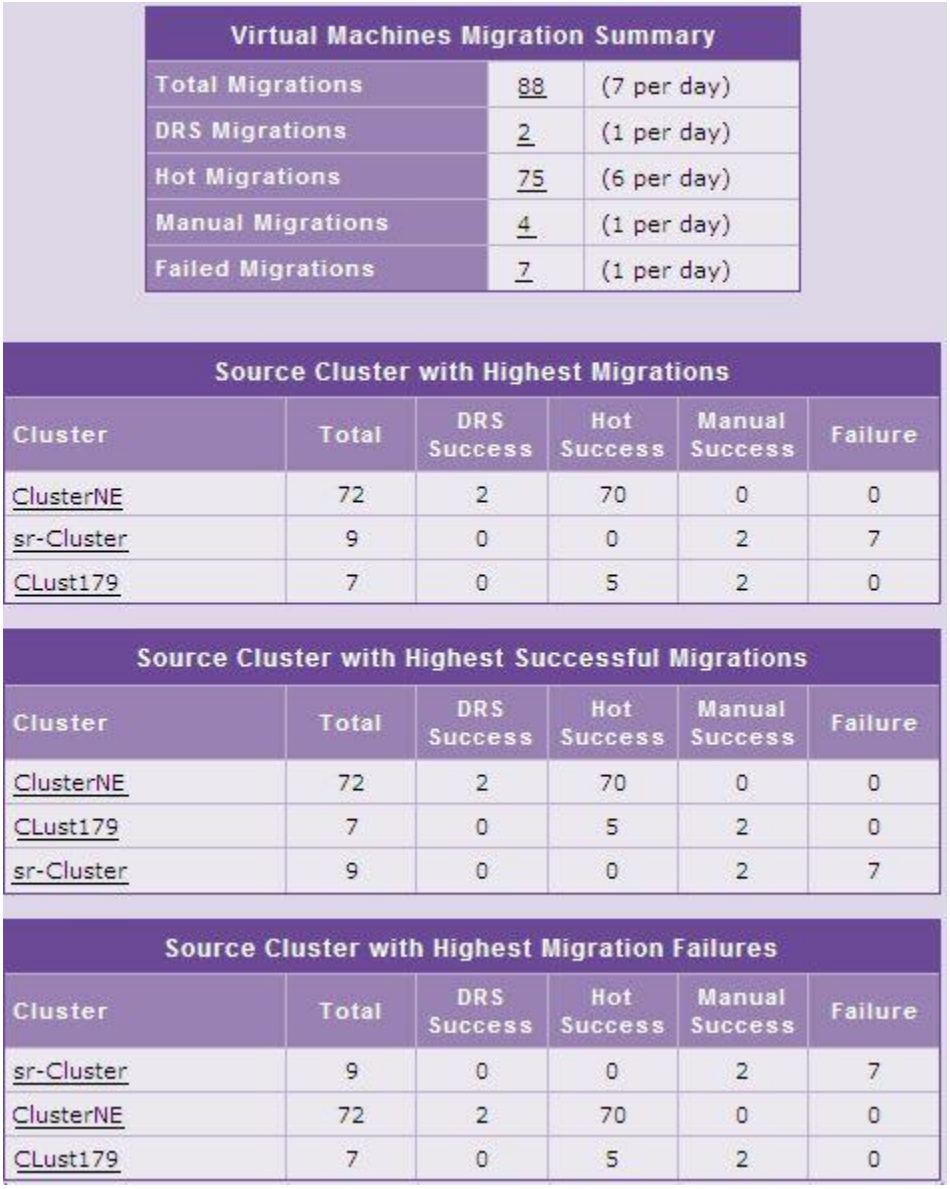


Figure 9.155: The VMotion Summary Graph report if the Source Cluster option is chosen from the Summary list



Virtual Machines Migration Summary		
Total Migrations	88	(7 per day)
DRS Migrations	2	(1 per day)
Hot Migrations	75	(6 per day)
Manual Migrations	4	(1 per day)
Failed Migrations	7	(1 per day)

Source Cluster with Highest Migrations					
Cluster	Total	DRS Success	Hot Success	Manual Success	Failure
ClusterNE	72	2	70	0	0
sr-Cluster	9	0	0	2	7
CLust179	7	0	5	2	0

Source Cluster with Highest Successful Migrations					
Cluster	Total	DRS Success	Hot Success	Manual Success	Failure
ClusterNE	72	2	70	0	0
CLust179	7	0	5	2	0
sr-Cluster	9	0	0	2	7

Source Cluster with Highest Migration Failures					
Cluster	Total	DRS Success	Hot Success	Manual Success	Failure
sr-Cluster	9	0	0	2	7
ClusterNE	72	2	70	0	0
CLust179	7	0	5	2	0

Figure 9.156: The VMotion Data Report if the Source Cluster option is chosen from the Summary list

31. If you select the **Target Cluster** option from the **Summary** list, and set the **Show Details** flag to **Yes**, then, the **VMotion Summary & Top N (Graph)** report will additionally display 3 bar charts, and the **VMotion Summary & Top N (Data)** report will display 3 additional tables. Each of these bar charts/tables will indicate the following:

    - The clusters to which VMs have been migrated the maximum number of times;
    - The clusters to which the highest number of successful migrations have been performed;
    - The clusters to which the largest number of migrations failed;

    Besides detecting failed migration attempts, this information enables you to identify clusters that are healthy.

    In case of the **VMotion Summary & Top N (Graph)** report, clicking on any division in any bar graph will allow you to zoom into the details of the migrations of that type for that cluster.

In case of the **VMotion Summary & Top N (Data)** report, clicking on any a target **Cluster** in the target-related sections will allow you to view the **VMotion Details** report revealing the details of all migrations made to that cluster.

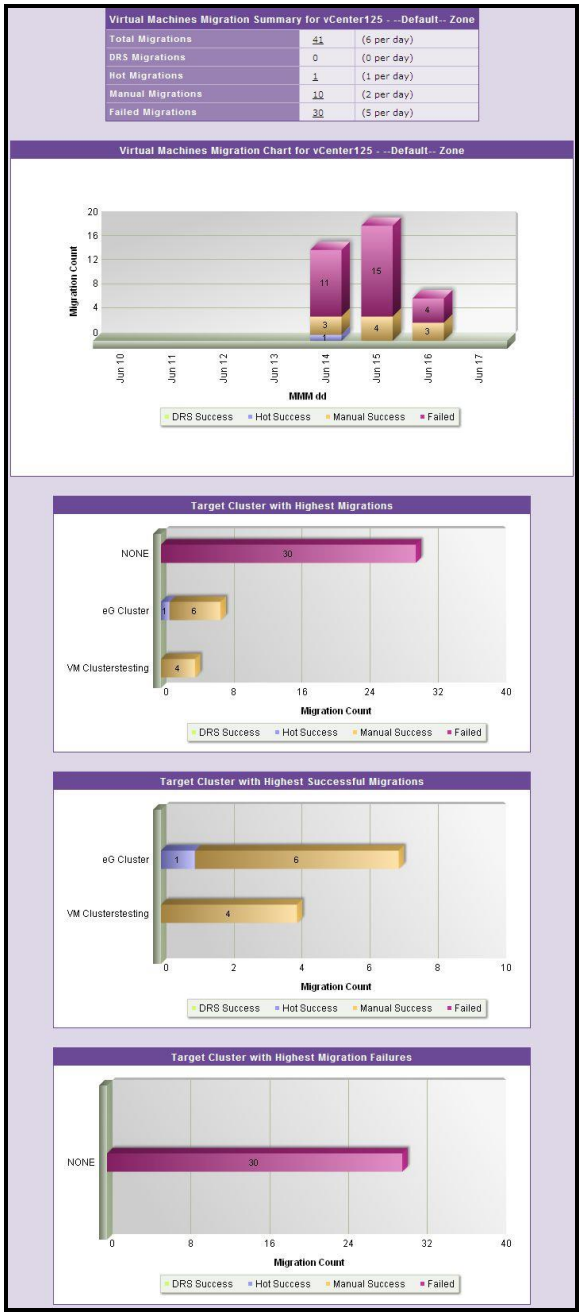
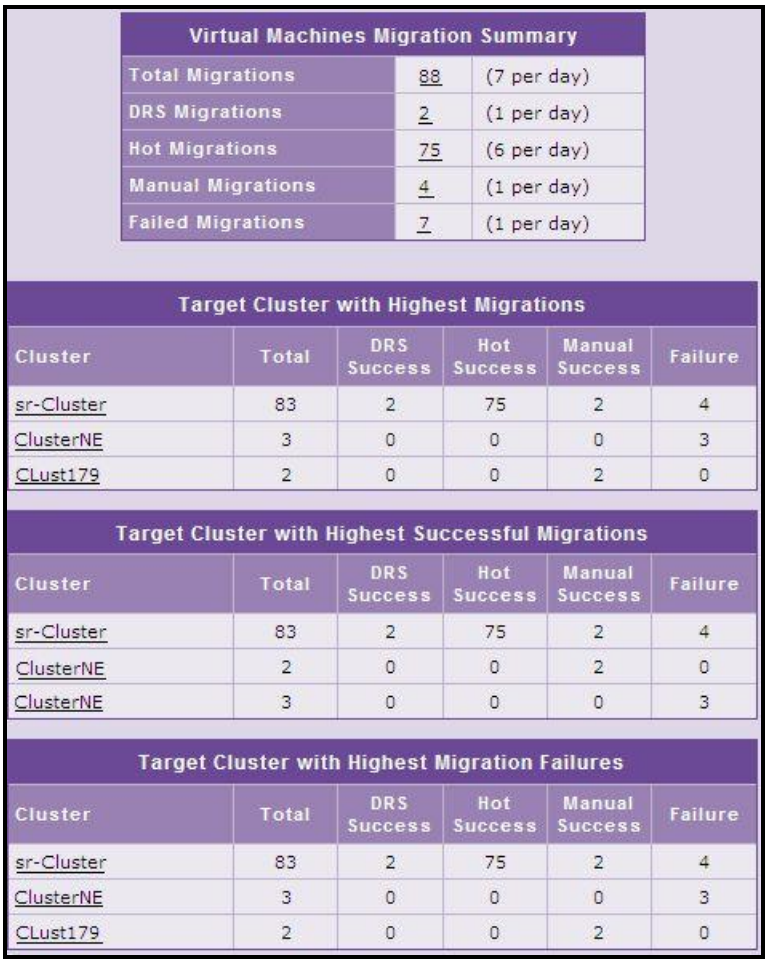


Figure 9.157: The VMotion Summary Graph report if the Target ESX option is chosen from the Summary list



Virtual Machines Migration Summary

Total Migrations	88	(7 per day)
DRS Migrations	2	(1 per day)
Hot Migrations	75	(6 per day)
Manual Migrations	4	(1 per day)
Failed Migrations	7	(1 per day)

Target Cluster with Highest Migrations

Cluster	Total	DRS Success	Hot Success	Manual Success	Failure
sr-Cluster	83	2	75	2	4
ClusterNE	3	0	0	0	3
CLust179	2	0	0	2	0

Target Cluster with Highest Successful Migrations

Cluster	Total	DRS Success	Hot Success	Manual Success	Failure
sr-Cluster	83	2	75	2	4
ClusterNE	2	0	0	2	0
ClusterNE	3	0	0	0	3

Target Cluster with Highest Migration Failures

Cluster	Total	DRS Success	Hot Success	Manual Success	Failure
sr-Cluster	83	2	75	2	4
ClusterNE	3	0	0	0	3
CLust179	2	0	0	2	0

Figure 9.158: The VMotion Data Report if the Target ESX option is chosen from the Summary list

VMotion Details Report

In addition to providing a macro view of the migration activity performed by chosen vCenter servers, the **VMotion Details** report provides detailed information pertaining to every migration, thus shedding light on the following:

- Which ESX servers and/or clusters has a VM 'visited' during the given period?
- When did every migration occur?
- Where is the VM currently located?
- Which migration attempt failed and why?

To generate this report, do the following:

1. Select **VMotion** from the **Virtualization** node of the **REPORTS BY FUNCTION** tree in the eG Reporter.

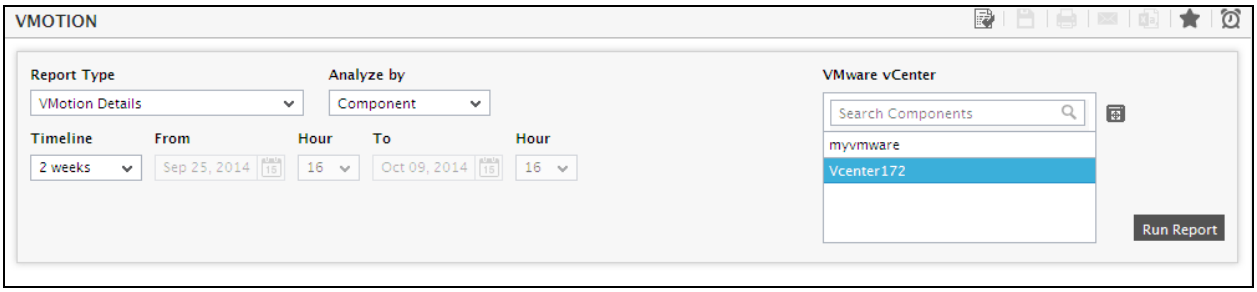


Figure 9.159: Generating the VMotion Details report

2. When Figure 9.159 page appears, first, indicate the **Report Type.** Set **VMotion Details** as the **Report Type**.

3. Next, from the **VMware vCenter** list, select the vCenter server(s) for which the migration report is to be generated. By default, all the managed vCenter servers in your environment will be listed here. This is because, the default selection from the **Analyze by** list is **Component**. You can however narrow your search by opting to view only those vCenter servers that are part of a service/segment/zone in the **VMware vCenter** list. For this, select the **Zone**, **Service**, or **Segment**, option from the **Analyze by** field:

   - Selecting the **Zone** option will allow you to select the desired zone from the **Zone** list box. To include the vCenter servers within a specific subzone also in the **VMware vCenter** list, set the **Include subzone** flag to **Yes**.
   - In the same way, to make the vCenter servers that are part of a particular segment or service available for selection in the **VMware vCenter** list, select **Service** or **Segment** from the **Analysis By** list box. Then, select the desired service or segment from the **Service** or **Segment** list.

4. If the **VMware vCenter** list consists of too many vCenter servers, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **VMware vCenter** list. The **VMWARE VCENTER** pop up window will then appear using which you can view almost all the vCenter servers in a single interface and select the ones for which the report is to be generated.

5. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation. By default, **1 day** will be selected from the **Timeline** list box.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more **VMware vCenter** servers. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.160). The steps below discuss each of these settings and how they can be customized.

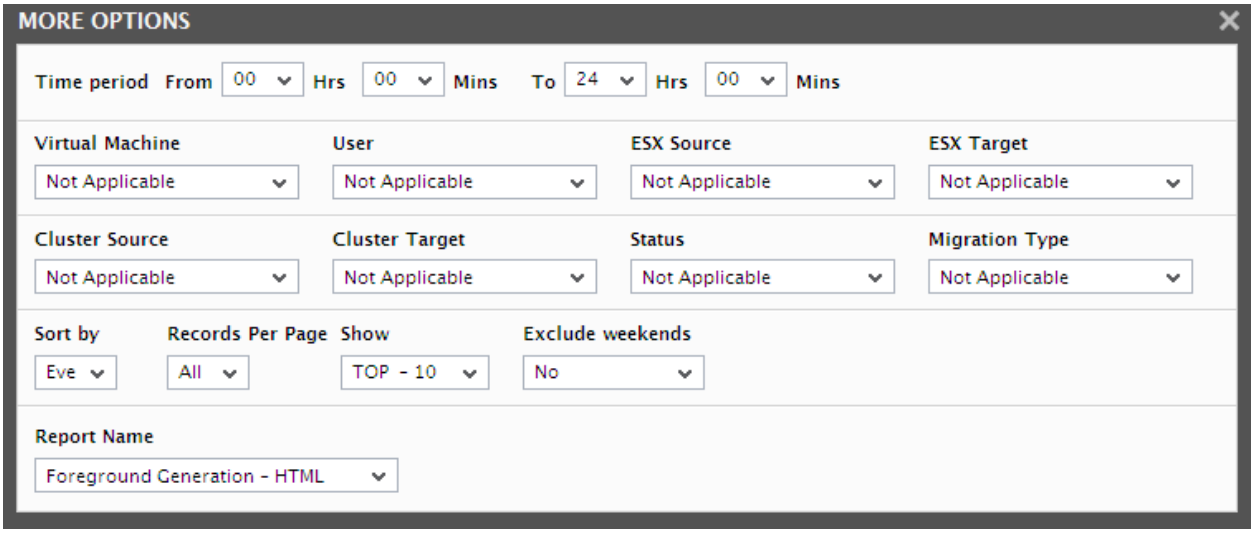


Figure 9.160: The default settings for generating the VMotion Details report

7. Next, indicate the report **Time period.** By default 00 Hr and 24 Min, 24 Hr and 00 Min will be selected in the **From** and **To** fields.

8. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes.** If not, select **No.**

By default, the weekend constitutes Saturday and Sunday. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>**\manager\config directory.
- In the **[VIRTUAL_CENTER]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday**,**Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday**,**Saturday**.
- Save the file after making the required changes.

9. By default, this report provides details of the migrations related to all the VMs managed by the chosen vCenter servers. Accordingly, the *All* option is chosen by default in the **Virtual Machine** list. To view a report pertaining to a particular VM instead, select a specific VM from the **Virtual Machine** list.
10. To view a report on migrations that were initiated by a pecific user, select the user name from the **User** list box. The default report however pertains to all users; accordingly, the *All* option is chosen by default from the **User** list.
11. If you want to view a report on VMs that were migrated from a particular ESX server, then select the server from the **ESX Source** list. By default, this report provides the details of migrations from all ESX servers managed by the chosen vCenter server. Accordingly, the *All* option is chosen by default from the **ESX Source** list.
12. For a report on VMs that were moved to a particular ESX server, select the destination server from the **ESX Target** list. By default however, this report focuses on VM migrations to all the ESX servers managed by the selected vCenter servers. Accordingly, the *All* option is chosen by default from the **ESX Target** list.
13. If you want to view a report on VMs that were migrated from a particular cluster, then select the cluster from the **Cluster Source** list. By default, this report provides the details of migrations from all clusters managed by the chosen vCenter server. Accordingly, the *All* option is chosen by default from the **Cluster Source** list.
14. For a report on VMs that were moved to a particular cluster, select the destination cluster from the **Cluster Target** list. By default however, this report focuses on VM migrations to all the clusters managed by the selected vCenter servers. Accordingly, the *All* option is chosen by default from the **Cluster Target** list.
15. By default, this report provides a summary of all migrations that occurred in an environment, regardless of their status. This explains why the default option chosen from the **Status** list is *All*. However, to view a report on the migrations of a particular state, select **Success** or **Failure** from the **Status** list.
16. Similarly, you can configure the report to provide the details of migrations of a particular type, by selecting one of the following types from the **Migration Type** list:
    - **DRS**: Refers to DRS-recommended migrations
    - **Hot:** Refers to powered-on virtual machines moved from one server to another
    - **Manual:** Refers to powered-off or suspended virtual machines moved from one server to another

    By default however, this report provides details of all types of migrations; accordingly, the *All* option is chosen by default from the **Migration Type** list.
17. By default, this report displays only **10** records per page. To view a more or a less number of records in every page, select a different number from the **Records Per Page** list box.

18. By default, this report is sorted in the descending order of the date and time at which each migration occurred. Accordingly, the **Event Time** option is chosen by default from the **Sort By** list. To change the sort order, pick a different option from the **Sort By** list.

19. By default, this report displays only the details of the top-10 migrations, based on the chosen sort order. Accordingly, the **Show** list is set to **TOP-10** by default. To change the 'N' in 'Top-N' or 'Last-N', pick a different 'Top' or 'Last' option from the **Show** list.

20. For instance, if the **Show** option is **TOP-10** and the **Sort By** option is **Event Time**, then this report will display only the top-10 most recent migration events. Similarly, if the **Show** option is **TOP-10** and the **Sort By** option chosen is **Virtual Center**, **Virtual Machine**, **VM Source**, **VM Target**, **Cluster Source**, or **Cluster Target**, then, the report first sorts the migration records in the alphabetical order of the Virtual Center names, VM names, ESX server names, or cluster names (as the case may be), and then displays only the top-10 records of the sorted list.

21. On the other hand, if the **Show** list is set to **TOP-10** and the **Sort By** option chosen is **Success**, then the report first arranges all successful migration events in the ascending order of their migration types (DRS, Hot, Manual), and then displays only the top-10 records of the sorted list. Likewise, if the **Sort By** option chosen is **Failure**, then the report first arranges all the failed migration events in the descending order of their migration types (Manual, Hot, DRS), and then, displays only the top-10 records of this list.

22. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

23. Finally, click on the **Run Report** button.

24. If the **Report Generation** mode is **Foreground Generation - HTML**, then, clicking the **Run Report** button will display a **Virtual Machine Migration Summary** that provides an overview of the migration activity that occurred

during the specified **Timeline**. Below this table you will find a **Virtual Machines Migration Details** section that provides elaborate details of every VM migration that took place in the environment during the given period. These details include the following:

- The **Virtual Center** that manages the VM that was migrated;
- The **Event Time** - i.e., the date and time at which the migration event took place;
- The **Virtual Machine** that was migrated;
- The **Source ESX** server from which the VM was migrated;
- The **Target ESX** server to which the VM was moved;
- The **User** who initiated the migration;
- The **Datacenter** involved in the migration;
- The **Source Cluster** from which the VM was migrated;
- The **Target Cluster** to which the VM was migrated;
- Whether the migration was a **Success** or not - displays **Y** if the migration was successful, and **N** if it failed;
- The **Migration Type** - **D** for DRS migrations, **H** for Hot migrations, and **M** for Manual migrations;
- A brief **Description** of the status of the migration activity - in case of a failed migration, this **Description** will indicate the reasons for the failure;

Virtual Machines Migration Summary		
Total Migrations	88	(7 per day)
DRS Migrations	2	(1 per day)
Hot Migrations	75	(6 per day)
Manual Migrations	4	(1 per day)
Failed Migrations	7	(1 per day)

Virtual Machines Migration Details

Virual Center	Event Time	Virtual Machine	Source ESX Server	Target ESX Server	User	Data Center	Source Cluster	Target Cluster	Success	Migration Type *	Description
VC15	Aug 31, 2009 09:35:01	winsys-kar	192.168.10.136	192.168.10.179	john	eG innovations1	winCluster	sr-Cluster	Y	H	Task: Migrate Virtual Machine
VC15	Aug 31, 2009 08:35:02	winsys-kar	192.168.10.179	192.168.10.136	john	eG innovations1	sr-Cluster	winCluster	Y	H	Task: Migrate Virtual Machine
VC15	Aug 31, 2009 07:35:02	winsys-kar	192.168.10.136	192.168.10.179	john	eG innovations1	winCluster	sr-Cluster	Y	H	Task: Migrate Virtual Machine
VC15	Aug 31, 2009 06:35:02	winsys-kar	192.168.10.179	192.168.10.199	john	eG innovations1	sr-Cluster	linCluster	Y	H	Task: Migrate Virtual Machine
VC15	Aug 31, 2009 05:35:03	winsys-kar	192.168.10.199	192.168.10.136	john	eG innovations1	linCluster	winCluster	Y	H	Task: Migrate Virtual Machine
VC15	Aug 31, 2009 04:35:02	winsys-kar	192.168.10.136	192.168.10.167	john	eG innovations1	winCluster	Cluster1	Y	H	Task: Migrate Virtual Machine
VC15	Aug 31, 2009 03:35:02	winsys-kar	192.168.10.167	192.168.10.199	john	eG innovations1	Cluster1	linCluster	Y	H	Task: Migrate Virtual Machine
VC15	Aug 31, 2009 02:35:03	winsys-kar	192.168.10.199	192.168.10.167	john	eG innovations1	linCluster	Cluster1	Y	H	Task: Migrate Virtual Machine
VC15	Aug 31, 2009 01:35:07	winsys-kar	192.168.10.167	192.168.10.136	john	eG innovations1	Cluster1	sr-Cluster	Y	H	Task: Migrate Virtual Machine
VC15	Aug 31, 2009 00:35:07	winsys-kar	192.168.10.136	192.168.10.179	john	eG innovations1	winCluster	sr-Cluster	Y	H	Task: Migrate Virtual Machine

* D - DRS, H - Hot, M - Manual

Figure 9.161: The VMotion Details report

25. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the icon in that page.

9.21 Datastores Report

One of the key challenges faced by administrators of virtualized environments is making sure that the datastores do not run out of space at any point in time. This is because, if a datastore experiences a severe space crunch, the VMs associated with that datastore may fail to operate, and this would render the VMs inaccessible to users.

To provide these administrators with historical insights into datastore usage so that they can capture potential space contentions, remove them, and ensure that business is transacted as usual in the virtualized environment at all times, eG Reporter offers **Datastore Reports**. This report category provides two types of reports - the **Datastore**

Overview report and the **Datastore VM Details** report. The sections that follow will discuss both these reports in details.

Datastore Overview Report

Using this report, the following can be ascertained:

- Are any datastores running out of space? If so, which ones are they?
- Which VMs will be impacted by a space crunch in the datastore?

To generate this report, do the following:

1. Select the **Datastore Overview** option by following the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> Datastores*.

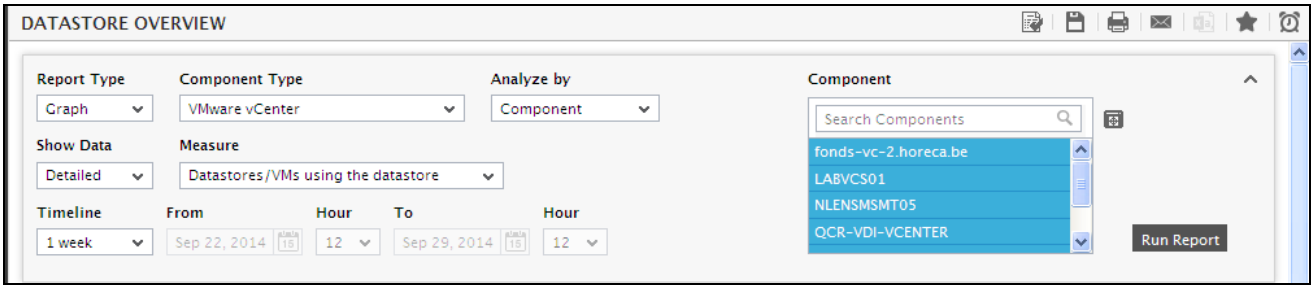


Figure 9.162: Generating the Datastore Overview report

2. When Figure 9.162 appears, first, indicate the **Report Type**. For a graphical representation of datastore performance, select the **Graph** option; for tabulated performance results, select the **Data** option. By default, the **Graph** option is chosen.
3. Next, select the component type for which the report should be generated from the **Component Type** list box. To view the report for all the component types, select the **All ComponentTypes** option from the **Component Type** list box. The **All ComponentTypes** option will be available if **Data** option is chosen from the **Report Type.**
4. Using this report, you can engage in a time-based performance analysis of those datastores that are used by specific ESX servers, the datastores that are managed by one/more vCenter servers, or those datastores that are associated with all the ESX servers/vCenter servers within a particular zone/segment/service. Indicate your choice by picking the one of the following options from the **Analyze by** list.
   - **Component:** If the **Component** option is chosen from the **Analyze by** list, then all components of the chosen **Component Type** will be listed in the **Component** list box. From this list box, select the components for which the report is to be generated. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
   - **Zone**: If the **Zone** option is chosen from the **Analysis by** list, then you would be required to select the **Zone** for which the report is to be generated. In addition, you will also have to indicate whether the report needs to include even those datastores that are associated with the ESX servers/vCenter servers that are included in the sub-zones of the chosen zone. If this is the case, you will have to set the **Include sub-zones** flag to **Yes**.
   - **Service:** Select this option if the components for which a report is to be generated are involved in the delivery of a business service. Then, select a **Service**.

- **Segment:** Choose this option if the virtual hosts to be evaluated are part of a segment. Then, pick a **Segment** for analysis.

5. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.162. By default, the **Detailed** option is selected in Figure 9.162 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

   - Login to the eG administrative interface as 'admin'.
   - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
   - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to No, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

6. Next, pick the **Measure** for which the **Graph** report is to be generated.
7. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's Timeline specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

8. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Component**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.164). The steps below discuss each of these settings and how they can be customized.

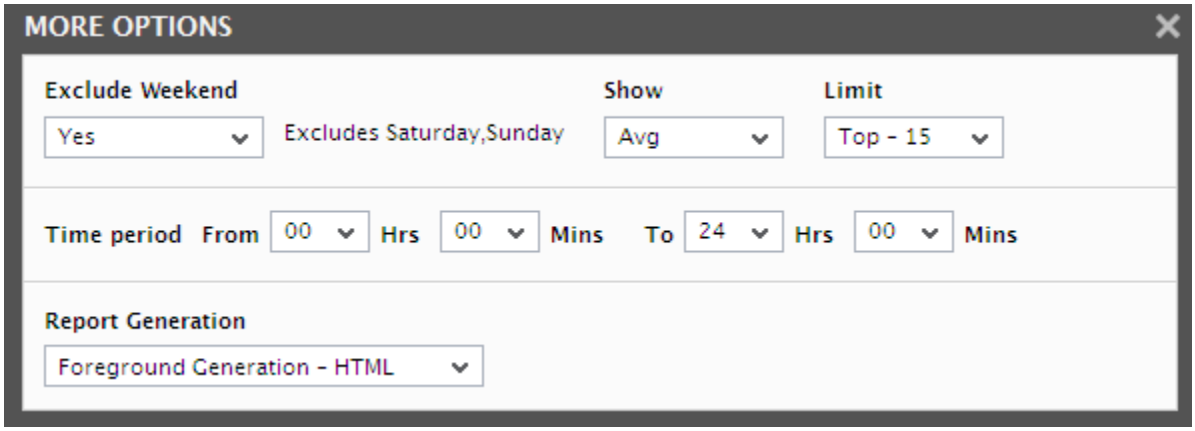


Figure 9.163: The default settings for generating the Datastore Overview report

9. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_DATASTORE]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday**,**Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday**,**Saturday**.
- Save the file after making the required changes.

10. By default, the **Graph** report computes the *Avg* value of the chosen **Measure**, and graphically represents the **TOP-N** datastores with a high *Avg* value. Accordingly, the *Avg* option is chosen by default from the **Show** list, and a **TOP-N** option is chosen by default from the **Limit** list. To arrange datastores based on the *Current* values reported for the chosen measure, pick **Current** as the option from the **Show** list.
11. Next, indicate the report **Time period**.
12. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

13. Finally, click the **Run Report** button.

14. If the **Report Type** is **Graph** and the **Report Generation** mode is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will reveal Figure 9.164.

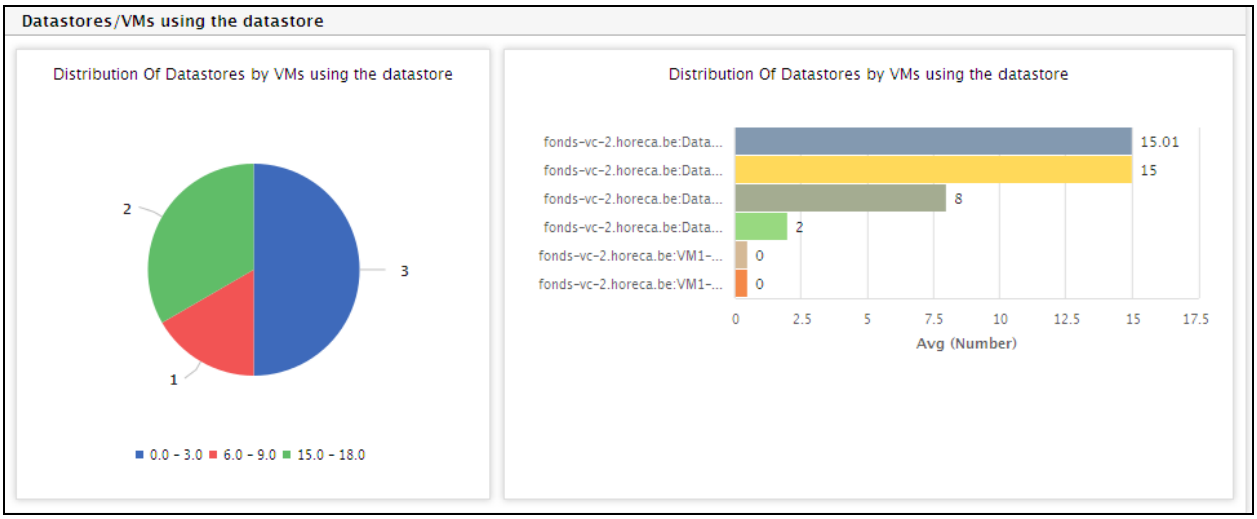
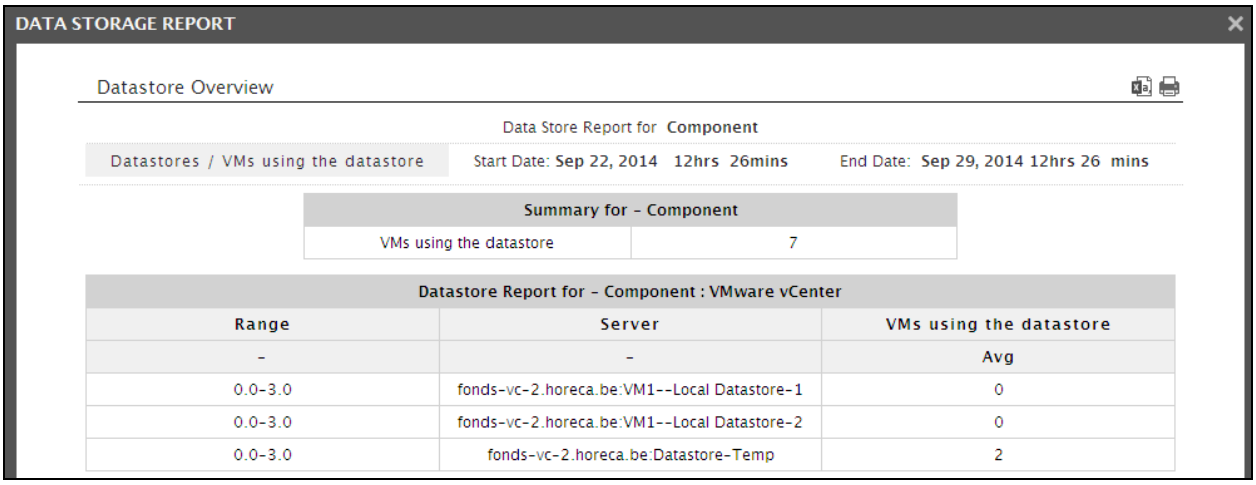


Figure 9.164: A Graphical DataStore Overview Report

15. Figure 9.164 comprises of the following:

- A distribution pie chart that depicts the number of datastores associated with the chosen component-type that are in different distribution ranges. The distribution ranges are obtained by applying the first of the configured functions on the chosen **Measure**. For instance, assume that *Physical disk space usage* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of this measure in a **Data** report. Typically, both these configured values will appear only in the **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Physical disk space usage* - alone is calculated for every datastore mapped to the chosen component-type. The resulting pie chart enables administrators to deduce, at a glance, the number of datastores where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the datastores that fall within the value range represented by that slice (see Figure 9.165). Against every datastore, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A vCenter-level **Summary** of the chosen **Measure** will also be available.


DATA STORAGE REPORT

Datastore Overview

Data Store Report for Component

Datastores / VMs using the datastore | Start Date: Sep 22, 2014 12hrs 26mins | End Date: Sep 29, 2014 12hrs 26 mins

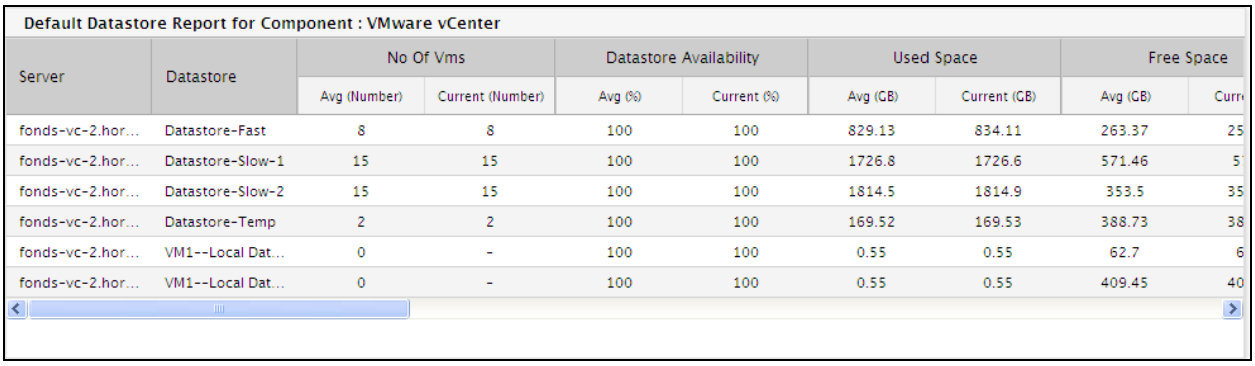
Summary for - Component	
VMs using the datastore	7

Datastore Report for - Component : VMware vCenter		
Range	Server	VMs using the datastore
-	-	Avg
0.0-3.0	fonds-vc-2.horeca.be:VM1--Local Datastore-1	0
0.0-3.0	fonds-vc-2.horeca.be:VM1--Local Datastore-2	0
0.0-3.0	fonds-vc-2.horeca.be:Datastore-Temp	2

Figure 9.165: The physical servers that fall within the usage range clicked on

- Adjacent to the pie chart, you will find a bar chart that indicates the datastores that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Physical disk space usage* measure, this bar chart reveals the datastores that are using the maximum disk space. Unlike the pie chart, the bar chart plots the *Avg* values of the chosen measure over a period of time, or the *Current* values of the measure, based on the option chosen from the **Show** list; the number of datastores displayed in the bar chart also depends upon the **TOP-N** or **LAST-N** option chosen from the **Limit** list.

16. If the **Report Type** is **Data**, then the resulting report will include a table listing all the datastores that were used during the specified **Timeline**, the number of VMs using each datastore, followed by a wide range of pre-configured and user-configured metrics revealing how effectively each datastore was utilized during the given period. If multiple functions (e.g., Avg, Current, Percent, etc.) have been configured to be applied on a measure, then the report will include a column for every configured function. With the help of this data, you can accurately identify datastores that were down during the stated period, datastores that ran / were running out of space, and the vCenters/ESX servers/VMs that were affected by such anomalies. You can zoom into the performance of a particular component by clicking on the corresponding link in the report - this will invoke a **Server Report** of that component, which reveals the overall health of the component. In addition, the **Datastorage Report** embeds a **Percent change** column, which indicates whether the overall datastore usage was optimal or erratic during the designated period. Sudden and significant spikes in datastore usage could cause the **Percent change** to increase.


Default Datastore Report for Component : VMware vCenter

Server	Datastore	No Of Vms		Datastore Availability		Used Space		Free Space	
		Avg (Number)	Current (Number)	Avg (%)	Current (%)	Avg (GB)	Current (GB)	Avg (GB)	Curr
fonds-vc-2.hor...	Datastore-Fast	8	8	100	100	829.13	834.11	263.37	25
fonds-vc-2.hor...	Datastore-Slow-1	15	15	100	100	1726.8	1726.6	571.46	5
fonds-vc-2.hor...	Datastore-Slow-2	15	15	100	100	1814.5	1814.9	353.5	35
fonds-vc-2.hor...	Datastore-Temp	2	2	100	100	169.52	169.53	388.73	38
fonds-vc-2.hor...	VM1--Local Dat...	0	-	100	100	0.55	0.55	62.7	6
fonds-vc-2.hor...	VM1--Local Dat...	0	-	100	100	0.55	0.55	409.45	40

Figure 9.166: The Data report for Data Storage

Server Report for fonds-vc-2.horeca.be:VMware vCenter

MEASURES (UNIT)	AVG	MAX	MIN	
CPU util (%)	2.7305	57.635	0	
Free memory (MB)	2331.6068	2472.5352	1627.7266	
Scan rate (Pages/Sec)	2.4492	900.9111	0	
Disk read time (Secs)	0	0.0188	0	
Disk write time (Secs)	0.0003	0.012	0	
Disk read rate (Reads/Sec)	0.2639	194.958	0	
Disk write rate (Writes/Sec)	2.7288	1845.6051	0	
Network availability (%)	0	0	0	
Network delay avg (Secs)	-	-	-	
TCP port availability (%)	-	-	-	
TCP retransmit ratio (%)	0.7949	1.7345	0.1729	
Incoming traffic (Mbps)	0.045	0.3146	0.017	
Outgoing traffic (Mbps)	0.0344	1.062	0.0038	
Current connections (Number)	132	207	105	
Used space (MB)	17324.3828	28367.0117	6754.4414	

Figure 9.167: Clicking on a 'Server' in the Data Storage Report

17. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the icon in that page.

    A default set of measures are pre-configured for the **Overview** report in the **[VIRTUAL_DATASTORE]** section of the **eg_report.ini** file (in the **<eg_install_dir>\manager\config** directory); these default measures are Server, Datastore, Datastore availability, Total capacity, Used space, Free space, Percent usage, Percent Change. You can, if you so desire, add more default measures to the **[VIRTUAL_DATASTORE]** section in the format:

    Default:<InternalTest>:<InternalMeasure>#<DisplayName>=<Comma-separated list of functions>.

DataStores VM Details Report

In a virtualized environment, a VM's operations may stall due to the unavailability, high latency, or abnormal usage of the datastore/virtual disks assigned to that VM. Since a datastore and/or a virtual disk can be shared by multiple VMs on a host, whenever users complaint of slowdowns while accessing their virtual applications, it would help to know which datastore/virtual disk has been assigned to the VMs running those virtual applications and how the datastore/virtual disk has been utilized by each VM. This knowledge will enable you to isolate over-utilized storage (i.e., datastore and virtual disks), the VMs responsible for their excessive usage, and the VMs affected by the same. The Datastores Details report provides you with this information.

Upon selection of one/all VMs on a virtual host, this report indicates which virtual disk and datastore has been

assigned to the VMs, and how the VMs utilized the virtual disk and the datastore in the given timeline. This enables administrators to do the following:

- Quickly point to over-utilized or slow storage;
- Identify the VMs on a host that are using the storage excessively;
- Understand how this excessive usage impacts the performance of other VMs on the host that are sharing the same storage

To generate this report, do the following:

1. Select the **DataStores VM Details** option by following the menu sequence: *REPORTS BY FUNCTION -> Virtualization -> DataStores*.
2. Figure 9.168 will then appear.

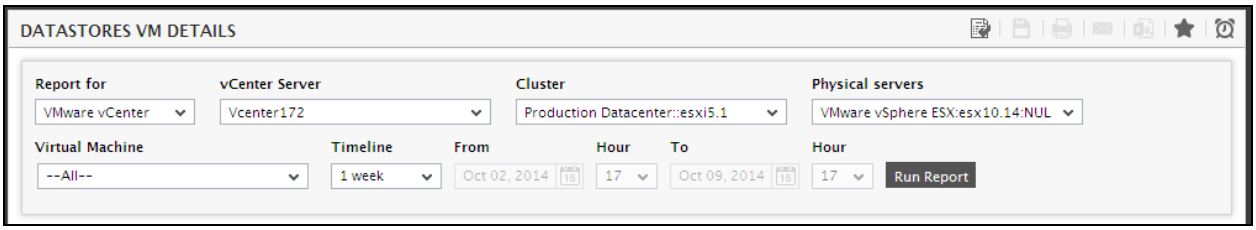


Figure 9.168: Generating the DataStores VM Details report

3. Select **VMware vCenter** from the **Report for** list, and then pick the **vCenter Server** for which the report is to be generated.
4. All clusters managed by the chosen vCenter will then populate the **Cluster** list. If the vSphere ESX server for which the report is to be generated is part of a particular cluster, select that cluster from this list. If you do not know which cluster the vSphere server belongs to, then, select the **All** option and proceed.
5. If a particular **Cluster** is chosen, then the **Physical Server** list will include all vSphere ESX servers that are part of that cluster. On the other hand, if **All** is chosen from the **Cluster** list, then all the vSphere servers across clusters will be available for selection in the **Physical Server** list. Pick the server for which the report is to be generated.
6. Next, from the list of **Virtual Machine**s on the chosen **Physical Server**, select the VM for which the report is to be generated. To view the datastore details of all VMs on the chosen **Physical Server**, select the **All** option.
7. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

8. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Virtual Machine**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.169). The steps below discuss each of these settings and how they can be customized.

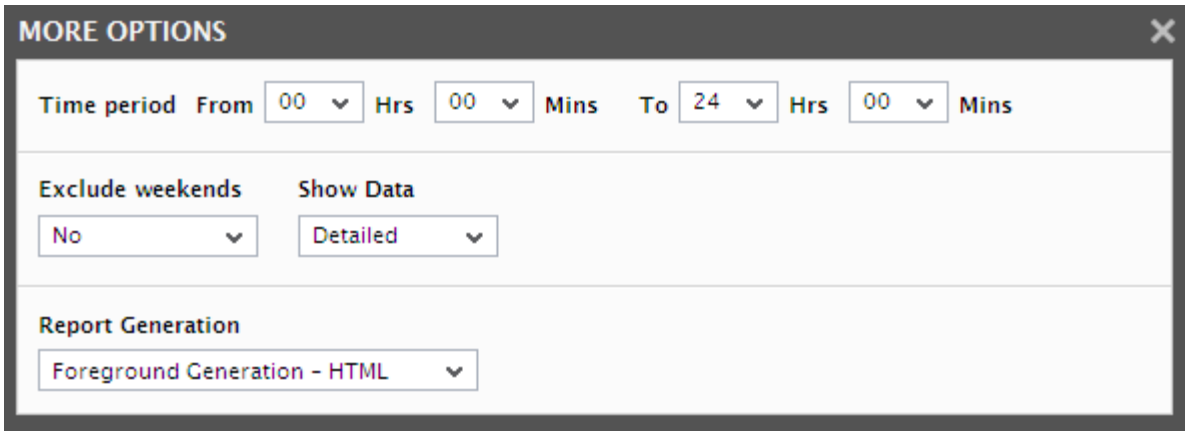


Figure 9.169: The default settings for generating the DataStores VM Details report

9. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information based comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend**

information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 9.168. By default, the **Detailed** option is selected in Figure 9.168 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

- Login to the eG administrative interface as 'admin'.
- Follow the menu sequence, *Configure -> Settings*. In the **SETTINGS** page that appears, select the **General** node under the **Manager Settings** node of the **Settings** tree.
- From the **MANAGER SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

---

10. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set

Exclude weekends to **Yes**. If not, select **No**.

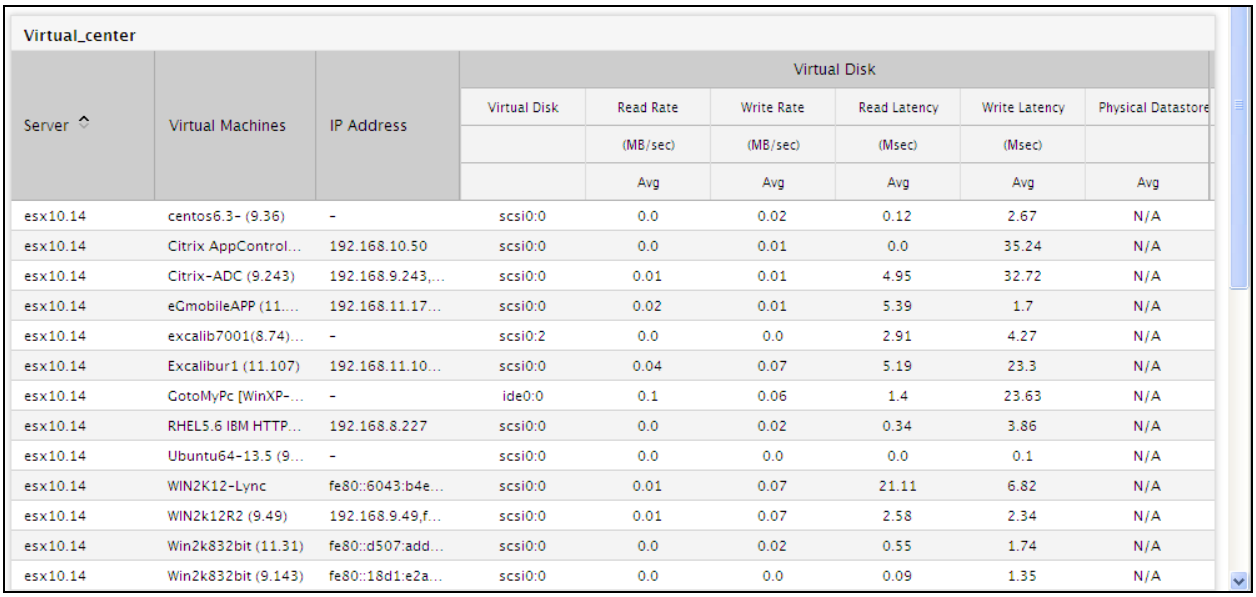
By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[VIRTUAL_DATASTORE]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

11. Next, indicate the report **Timeperiod**.
12. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

13. Finally, click the **Run Report** button. Figure 9.170 will then appear.



Virtual_center

Server	Virtual Machines	IP Address	Virtual Disk					
			Virtual Disk	Read Rate (MB/sec) Avg	Write Rate (MB/sec) Avg	Read Latency (Msec) Avg	Write Latency (Msec) Avg	Physical Datastore Avg
esx10.14	centos6.3- (9.36)	-	scsi0:0	0.0	0.02	0.12	2.67	N/A
esx10.14	Citrix AppControl...	192.168.10.50	scsi0:0	0.0	0.01	0.0	35.24	N/A
esx10.14	Citrix-ADC (9.243)	192.168.9.243,...	scsi0:0	0.01	0.01	4.95	32.72	N/A
esx10.14	eGmobileAPP (11....	192.168.11.17...	scsi0:0	0.02	0.01	5.39	1.7	N/A
esx10.14	excalib7001(8.74)...	-	scsi0:2	0.0	0.0	2.91	4.27	N/A
esx10.14	Excalibur1 (11.107)	192.168.11.10...	scsi0:0	0.04	0.07	5.19	23.3	N/A
esx10.14	GotoMyPc [WinXP-...	-	ide0:0	0.1	0.06	1.4	23.63	N/A
esx10.14	RHEL5.6 IBM HTTP...	192.168.8.227	scsi0:0	0.0	0.02	0.34	3.86	N/A
esx10.14	Ubuntu64-13.5 (9...	-	scsi0:0	0.0	0.0	0.0	0.1	N/A
esx10.14	WIN2K12-Lync	fe80::6043:b4e...	scsi0:0	0.01	0.07	21.11	6.82	N/A
esx10.14	WIN2k12R2 (9.49)	192.168.9.49,f...	scsi0:0	0.01	0.07	2.58	2.34	N/A
esx10.14	Win2k832bit (11.31)	fe80::d507:add...	scsi0:0	0.0	0.02	0.55	1.74	N/A
esx10.14	Win2k832bit (9.143)	fe80::18d1:e2a...	scsi0:0	0.0	0.0	0.09	1.35	N/A

Figure 9.170: The DataStores VM Details Report

14. If the **All** option had been chosen from the **Virtual Machine** list, Figure 9.170 will list all the VMs on the selected **Physical Server**. For each VM, the report will reveal the name of the virtual disk and physical datastore that has been assigned to that VM. The space usage, I/O activity, and read/write latency experienced by that virtual disk and physical datastore will also be displayed in the report. With the help of this report, you can determine the following:
    - Which virtual disks and physical datastores have been utilized excessively?
    - Which virtual disks and physical datastores have been utilizing high latencies?
    - Which VMs on the host are using these problematic virtual disks and phystical datastores?
    - Which VMs are responsible for the abnormal space usage on a virtual disk?
    - Which VMs are affected by the abnormal space usage on an assigned virtual disk/physical datastore?
15. Clicking on any measure value in this report will lead you to a measure graph revealing the variations in that measure during the last hour.

9.22 Uptime Reports

Uptime is a key measure of the general health and availability of the critical virtual hosts and VMs in a virtualized infrastructure. Periodic uptime values that the eG agent reports for target hosts/VMs can alert you to unscheduled reboots that occurred recently; however, to effectively assess host/VM availability over time, accurately determine unexpected and prolonged breaks in availability, and accordingly ascertain service level achievements/slippages, a look at the total uptime of a virtual host/VMs and the total number of reboots it experienced over a period of time is necessary. To enable such an analysis for one/more critical components of a virtualized infrastructure, eG Enterprise provides **Uptime Reports**.

Using the **Uptime Reports**, you can figure out the following:

- Which virtual hosts/VMs are the healthiest, in terms of availability?
- Which hosts/VMs have been down for the longest period of time? How long was each server unavailable during the specified timeline?

- How many times during the designated period did a host/VM reboot? How many of these were scheduled reboots? How long was the host/VM down before every reboot?

To generate an uptime report, do the following:

1. Select the **Uptime** option from the **Virtualization** node of the **REPORTS BY FUNCTION** tree.
2. When Figure 9.171 appears, first indicate the **Report Type** to be generated. For viewing the uptime details of components in a table, choose the **Data** option. For graphically representing the uptime/downtime of chosen components, select the **Graph** option.

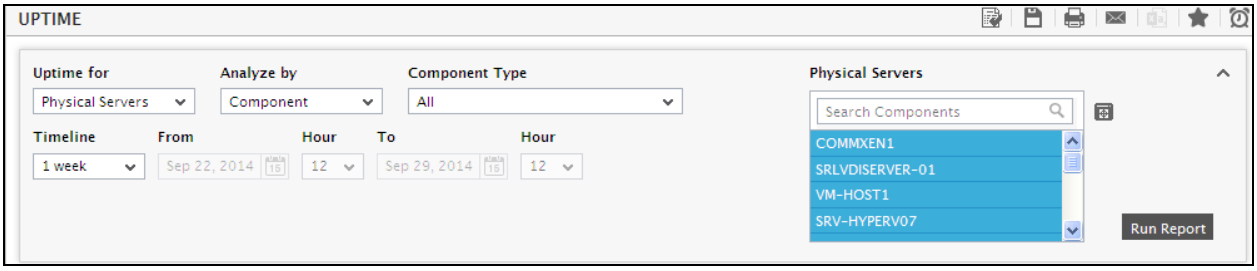


Figure 9.171: Specifying the criteria for Uptime reports

3. Next, pick an option from the **Uptime for** list and indicate whether the report to be generated is for **Physical Servers** or **Virtual Machines**.
4. If the **Physical Servers** option is chosen, then the following steps apply:

   - By default, selecting the **Physical Servers** option from the **Uptime for** list will populate the **Physical Servers** list box in the **Uptime Report** page with all the managed virtual hosts in the target environment. You would then have to pick and choose the physical servers for which the report is to be generated from the **Physical Servers** list box.

     This implies that in the case of large virtualized infrastructures characterized by hundreds of physical servers, a large number of virtual hosts will be made available for selection in the **Physical Servers** list box; selecting the desired elements from this 'endless' list will hence become a painful exercise. To ease the pain involved in choosing the elements for report generation, eG Enterprise provides an **Analyze by** list; by selecting an option from this list, you can quickly condense the **Physical Servers** list and then swiftly identify the elements of interest to you. By default, the **Component** option is chosen from the **Analyze by** list - this indicates that by default, the **Physical Servers** list will display all the the managed virtual hosts in the target environment. The other options in the list include:

     - **Zone**: To generate an uptime report for one/more physical servers that are included in a zone, pick the **Zone** option. A **Zone** drop-down list will then appear, from which you would have to select the zone to which the physical servers of interest to you belong. An **Include Subzone** flag also appears. Indicate whether the virtual hosts present within the sub-zones of the chosen zone are also to be considered for report generation, by setting the **Include Subzone** flag to **Yes**.
     - **Segment:** If you want to generate an uptime report for one/more physical servers that belong to a segment, select the **Segment** option from **Analyze by** and then pick the **Segment** option from the drop-down list that appears.
     - **Service:** If you want to generate an uptime report for one/more physical servers involved in the delivery of a service, select the **Service** option from **Analyze by** and then pick the required **Service** from the drop-down list that appears.

   - Then, to further filter the components listed in the **Physical Servers** list box, pick a **Component Type** - this way, only those virtual hosts that are of the chosen type will be available for selection in the **Physical**

Servers list. By default, the *All* option is chosen here indicating that all managed physical servers in the target environment will be displayed in the **Physical Servers** list box, by default.

- Select the physical servers for which uptime reports are to be generated from the **Physical Servers** list box. If this list consists of too many **Physical Servers**, then viewing all the servers and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Physical Servers** list. The **PHYSICAL SERVERS** pop up window will then appear using which so that you can view almost all the servers in a single interface and **Select** the ones for which the report is to be generated.

5. On the other hand, if the **Virtual Machines** option is chosen from the **Uptime for** list, then the following steps apply:

   - By default, selecting the **Virtual Machines** option from the **Uptime for** list will populate the **Virtual Machines** list box that will appear in this case, with all the guest operating systems executing on all the managed physical servers in the environment. You would then have to pick and choose the physical servers for which the report is to be generated from the **Physical Servers** list box.

     This implies that in the case of large virtualized infrastructures characterized by hundreds of physical servers, each hosting tens of guest operating systems, a large number of virtual machines will be made available for selection in the **Virtual Machines** list box; selecting the desired elements from this 'endless' list will hence become a painful exercise. To ease the pain involved in choosing the elements for report generation, eG Enterprise provides an **Analyze by** list; by selecting an option from this list, you can quickly condense the **Virtual Machines** list and then swiftly identify the elements of interest to you. By default, the **Component** option is chosen from the **Analyze by** list - this indicates that by default, the **Virtual Machines** list will display the complete set of VMs that are executing on all the managed virtual hosts in the target environment. The other options in the list include:

     - **Zone**: To generate an uptime report for one/more VMs that have been configured on physical servers that are included in a zone, pick the **Zone** option. A **Zone** drop-down list will then appear, from which you would have to select the zone to which the physical servers of interest to you belong. An **Include Subzone** flag also appears. Indicate whether the virtual hosts present within the sub-zones of the chosen zone are also to be considered for report generation, by setting **the Include Subzone** flag to **Yes**.
     - **Segment:** If you want to generate an uptime report for those VMs that are executing on virtual hosts that belong to a segment, select the **Segment** option from **Analyze by** and then pick the **Segment** from the drop-down list that appears.
     - **Service:** If you want to generate an uptime report for those VMs that are being hosted by the physical servers engaged in service delivery, select the **Service** option from **Analyze by** and then pick the required **Service** from the drop-down list that appears.

   - Then, to further filter the components listed in the **Virtual Machines** list box, pick a **Component Type** - this way, only those VMs that are executing on the virtual hosts of the chosen type will be available for selection in the **Virtual Machines** list. By default, the *All* option is chosen here indicating that VMs operating on all managed physical servers in the target environment will be displayed in the **Virtual Machines** list box, by default.

   - Select the VMs for which uptime reports are to be generated from the **Virtual Machines** list box. If this list consists of too many VMs, then viewing all the VMs and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Virtual Machines** list. The **VIRTUAL MACHINES** pop up window will then appear using which you can view almost all the VMs in a single interface and select the ones for which the report is to be generated.

6. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc.,

or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report button** a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick one/more **Physical Servers** or **Virtual Machines** (as the case may be). However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 9.172). The steps below discuss each of these settings and how they can be customized.

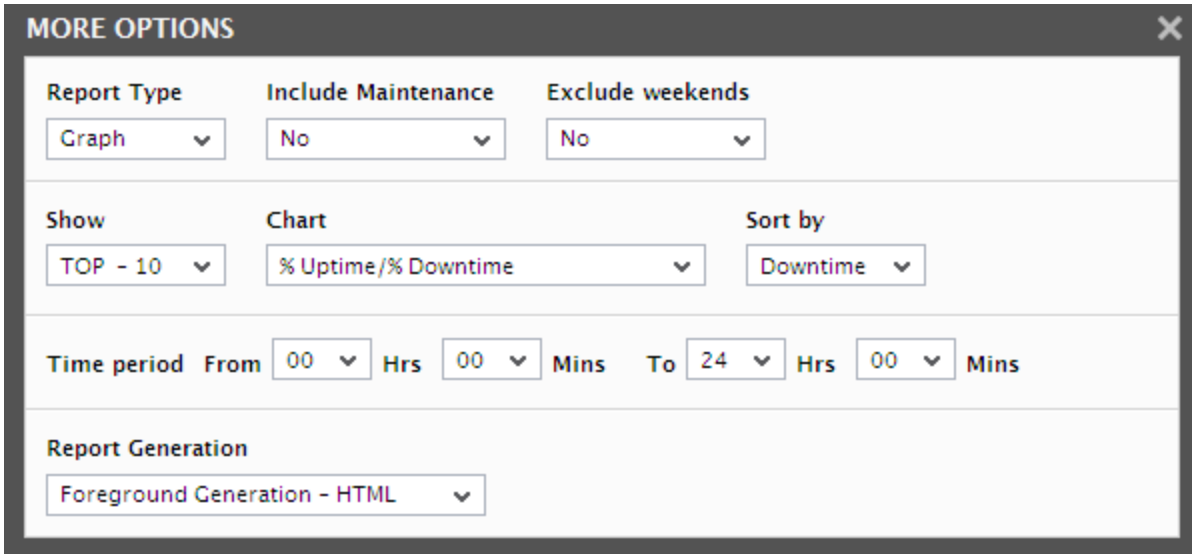


Figure 9.172: The default settings for generating the Uptime Reports

8. By default, the Uptime report ignores all reboots that occur when a 'maintenance policy configuration' is active on a physical server/VM - in other words, such reboots are by default excluded from the count of reboots

displayed by the report. This default behavior is governed by the **Include Maintenance** flag, which is set to **No** by default. You can however, optionally configure the Uptime report to include reboots that occur during maintenance periods in its count of reboots. For this, set the **Include Maintenance** flag to **Yes**.

9. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.
10. If the **Report Type** is **Data,** then, a **Show Details** flag will appear set to **No** by default. This indicates that, by default, the resulting **Data** report will not provide reboot details. To view reboot details along with the uptime details, set the **Show Details** flag to **Yes**.

You can configure the days of the week that need to be considered as a 'weekend' using the **Days** parameter in the **[EXCLUDE_WEEKEND]** section in the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory). The **Days** parameter is set to *Saturday,Sunday* by default. To change this weekend specification, enter two other days of the week against the **Days** parameter.

11. If the **Report Type** you have chosen is **Graph,** then a **Chart** drop-down list will appear from which you can select how uptime/downtime should be represented in the graph - as a percentage? or in hours?. If the **%Uptime/%Downtime** option is chosen, then the resulting graph will plot the percentage of time for which the selected components have been up/down. On the other hand, if the **Uptime/Downtime** option is selected, then the graph will plot the total number of hours for which the chosen components have been up/down.
12. Next, select the data on the basis of which the report should be sorted. By default, the **Downtime** option is chosen from the **Sort by** list.
13. Since the default **Sort by** option is **Downtime,** by default, the report provides the details of only the top-10 components with the maximum downtime. If a different **Sort by** option, say **Reboots,** is chosen, then the report, by default, will only pertain to the top-10 components in the environment, on the basis of the number of reboots. You can choose a different top-n / last-n option from the **Show** list, if need be.

By default, the values displayed in the **Show** list range from **TOP-10** to **LAST-10**. This is because, the **Showtop** parameter in the **[INFOS]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory) is set to 10, by default. You can, if required, configure the **Show** list to display a different range of options. For this, specify a different number against the **Showtop** parameter, and save the **eg_report.ini** file.

14. Next, indicate the report **Timeperiod.**

By default, the **Timeperiod** is set to 24 hours. Accordingly, the **From** and **To** parameters in the **[TIMEFRAME]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory) are set to 00:00 and 24:00 respectively. If need be, you can override this default setting by configuring a different timeframe against the **From** and/or **To** parameters.

15. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

16. Finally, click the **Run Report** button.
17. If the **Report Type** is **Graph** and the **Report Generation** mode is **Foreground Generation - HTML**, then clicking the **Run Report** button will reveal a bar graph depicting the uptime and downtime of the chosen components. From this graph, you can easily identify the components that have been unavailable during the specified **Timeline**, and the duration of the unavailability.

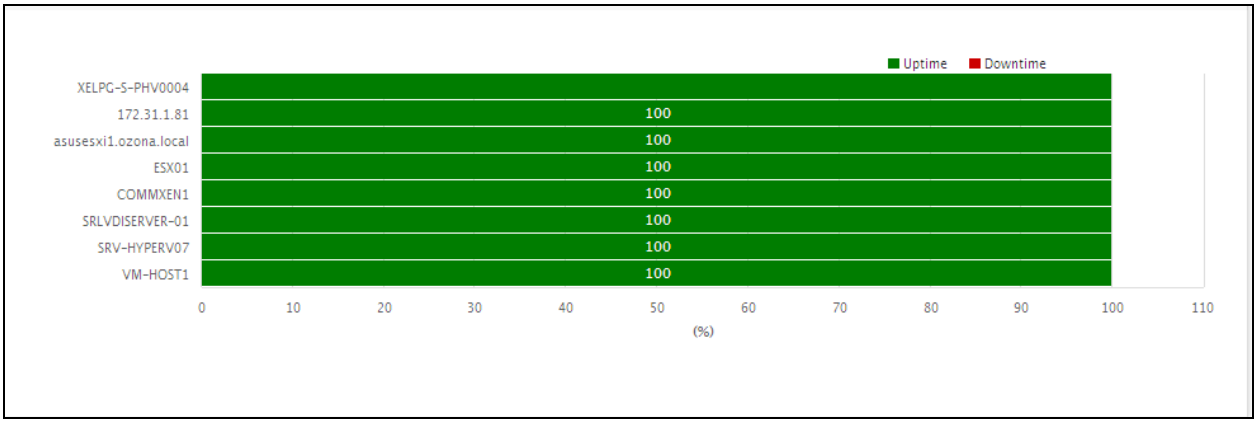


Figure 9.173: The Graphical Uptime report

18. Clicking on the bar corresponding to any of the components displayed in **Physical servers Uptime Chart** page will invoke **Uptime Details** page which will allow you to zoom into the uptime details of that particular component. Besides providing a pie chart that depicts the percentage uptime and downtime of the chosen component, **Uptime Details** page also provides the following useful information:

   - The total duration for which the chosen component was up and running during the specified **Timeline;**
   - The percentage uptime of the component;
   - The total duration for which the chosen component was down during the specified **Timeline;**
   - The percentage downtime of the component;
   - The total number of reboots that the component experienced during the specified **Timeline;**
   - A **Reboot Details** section that indicates the following for every reboot:
     - When the component was shutdown
     - When the reboot occurred
     - The duration for which the component remained shutdown before being rebooted;

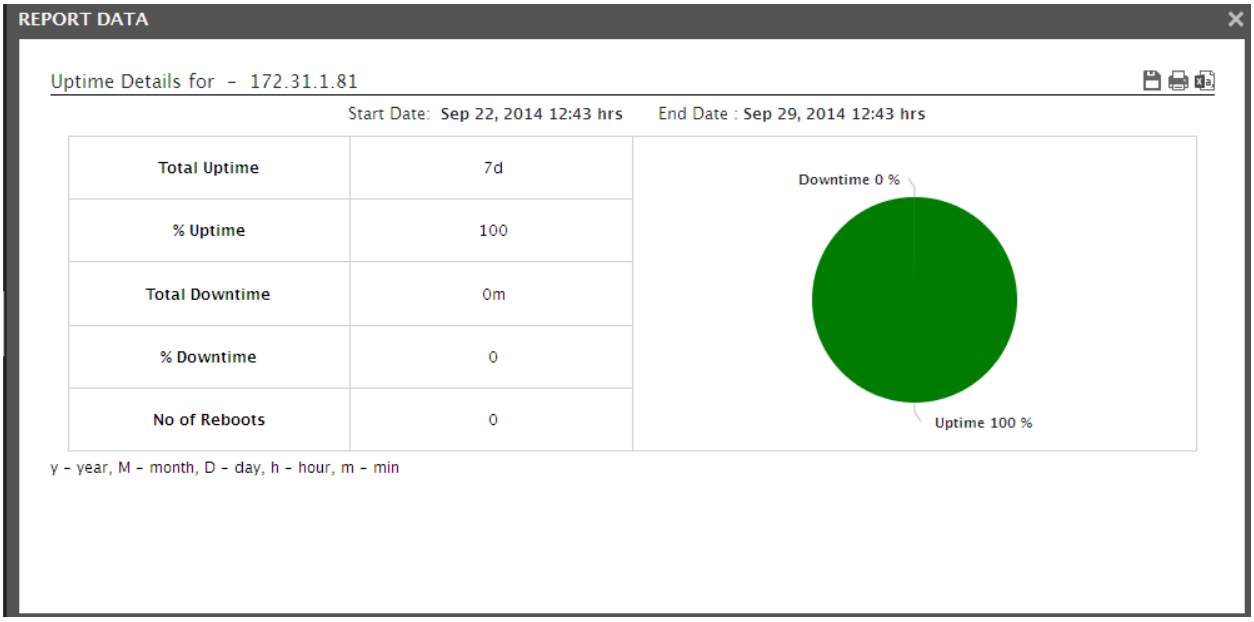


Figure 9.174: Clicking on a bar in the Uptime report

19. Using the **Uptime Details** page, you can figure out how often a component was rebooted, and thus determine whether such reboots were scheduled or unexpected.

20. If the **Report Type** is **Data** and the **Report Generation** mode is set to **Foreground Generation - HTML**, then clicking on the **Run Report button** will reveal Uptime data report. For every component chosen, the **Data** report reveals the total uptime, total downtime, percentage uptime, percentage downtime, and number of reboots. Components with high uptime/downtime and those that rebooted frequently can be instantly isolated using this report. Since the **Show details** flag is set to **No** by default for the **Data** report, Uptime data report will not include a separate section providing reboot information. To view the reboot details of a component therefore, you will have to click on the icon under the **Details** column corresponding to that component.

21. A page will then appear providing the reboot information. You can save these details to a PDF file, print the details, or save them as a CSV file using the icons present at the right, top corner of **Reboot Details** page.

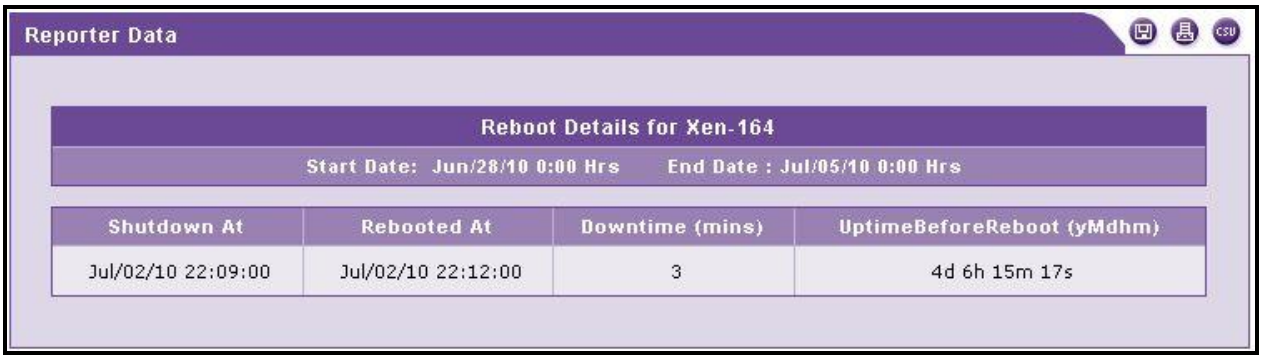


Figure 9.175: Reboot details

22. If the **Show Details** flag had been set to **Yes** instead, then the reboot details available in **Reporter Data** page be provided as part of the original report itself.

23. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a

message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a **PDF** of the report by clicking on the icon in that page.

10

Citrix / VDI Reports

In thin client environments typically, a central server hosts all critical applications, and clients (called 'thin' clients due to their limited memory, CPU, and disk space requirement) are used just to access the applications on the server. Owing to the low licensing cost of applications, lower resource consumption by clients, centralized control, and easy access to applications, thin client or server-based computing has gained in significance. With an increase in popularity and size of deployment, the complexity of such infrastructures and consequently, their monitoring challenges have increased.

The eG Enterprise suite includes customized monitoring and reporting for Citrix, Terminal servers, and virtual desktop environments. The **Citrix /VDI Reports** category in the eG Reporter addresses the unique monitoring requirements of these thin client environments. This category provides valuable insights into different aspects of a thin client infrastructure's performance. This includes:

- Zone reports that provide a comprehensive overview of the health of the server farms;
- User reports that allow administrators to focus on specific users, their activity on the server farms, the applications they often access, and the resources they consume;
- Session reports that highlight session distribution across a farm and access patterns of users;
- Application reports that report on the most popular applications in the farm as well as the most resource intensive applications.

The sections that follow will discuss each of these report options in great detail.

In order to enable administrators to monitor a server farm as a whole, eG Enterprise allows administrators to group all the Citrix/Terminal/VMware VDI servers in a farm to a particular zone, and generate reports pertaining to the zone. If zones are not defined, all the servers in a user's view are considered to be part of the **Default** zone for that user, and a zone report can be obtained for this zone.

10.1 Zone Performance Report

A **Zone Performance** report provides a comprehensive overview of the performance of a thin-client farm. Metrics of interest (pre-specified by the administrator) are aggregated across all the Citrix/Microsoft RDS/VMware VDI servers in the farm, and a summary describing the performance of a farm is provided as part of the Zone Performance report. Additionally, for each of the servers, critical metrics are reported for the timeline chosen by the user. These metrics provide key insights into how the server farm is performing and where the bottlenecks may be.

To view the Zone Performance report, do the following:

1. Select the Zone Performance option from the Citrix / VDI Reports node of the REPORTS BY FUNCTION tree.
2. Figure 10.1 will then appear. To monitor the servers that form part of a specific farm, select the **Zone** to which the servers in the farm have been added. By default, the **Zone** list displays only those zones that contain components belonging to any/all of the following types: *Citrix*, *Citrix MF*, Citrix *MF XP*, *Citrix Sec gwy*, *Citrix STA*, *Citrix ZDC*, *Microsoft RDS, Hyper – V VDI, VMware vSphere VDI*, *Citrix XenApp, Citrix XenApp4/5/6.x, Citrix XenDesktop Broker v5.*

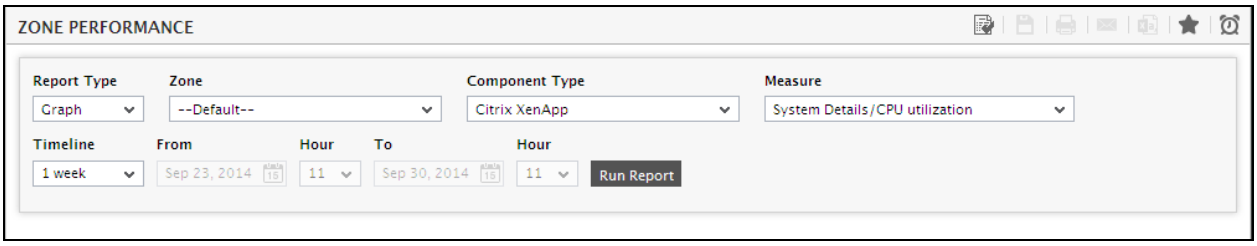


Figure 10.1: Generating a Thin Client Zone Report

3. Once the **Zone** is chosen, eG searches the zone for component-types that match one/more types listed above. The matching component types alone populate the **Component Type** list. To receive an overview of the performance of all servers of a particular type across a chosen zone, select a **Component type** from this list.

Note

If no zones are currently configured, then you can use the **Default** zone to generate the **Zone Performance** report.

---

4. Next, choose a **Report Type** (**Graph** or **Data**). The default **Report Type** is **Graph**. To closely observe and clearly understand the behavior of a single performance parameter across a component-type, you can plot a single measure's data alone in a **Graph** report (see Figure 10.1).
5. When the **Report Type** is **Graph**, a **Measure** list box will appear, containing the complete list of measures that you have configured for the report. From this list, pick the **Measure** for which a graph is to be generated (see Figure 10.1).
6. You can either provide a fixed **Timeline** such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

- The default **Timeline** can be set using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.
- Shorter the **Timeline** for a report, lighter would be the query that is executed on the database, and faster the report generation. Report **Timelines** that run across many weeks therefore, cause excessive strain on the database, thus slowing-down report generation. To save the eG backend from injury, eG Enterprise automatically restricts the maximum **Timeline** for which a thin client report can be generated to the lower of the following values:
- the value of the **Citrix Login Test** parameter in the **[DDD_CLEANUP]** section of the **eg_format.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory)
- the value of the **MaxTimeline** parameter in the **[MISC]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory).
- The maximum timeline for which the current user to eG Reporter is permitted to generate reports;

The **[DDD_CLEANUP]** section is where you define the interval (in days) at which the detailed diagnosis of specific tests is to be purged from the database. For the **Citrix Login Test**, the default interval is set to 32 days (i.e., just over a month), indicating that, by default, the detailed diagnosis of the **Citrix Login Test** is cleared from the database at the end of every month. Since critical thin client reports are generated based on the detailed diagnosis information, a **Timeline** that exceeds the duration set against **Citrix Login Test** would result in a report that displays invalid/no data. This duration however, is configurable. Similarly, you can also configure a **MaxTimeline** in the **[MISC]** section of the **eg_report.ini** file. By default, this parameter is set to **168** (hours), indicating that the maximum **Timeline** for a thin client report is **1 week** (i.e., 24 * 7 = 168 hours). Also, while creating user profiles using the eG administrative interface, an administrator can indicate the maximum timeline for which that user can generate reports, so as to avoid long running reports.

Now, assume that you have set the **Citrix Login Test** parameter to 21 days (i.e., 3 weeks) and the **MaxTimeline** parameter to 336 hours (i.e., 2 weeks). Also, say that user *john* with access rights to eG Reporter has been configured to generate reports for a maximum timeline of 1 week. Therefore, whenever user *john* logs into eG Reporter and attempts to generate a thin client report, eG Enterprise compares the three values, picks the lowest of the three, and sets that value as the maximum **Timeline** for thin client reports. In our example, the maximum timeline settings of user *john* (i.e., 1 week) is the lowest Therefore, the maximum value that will be available for selection from the **Fixed Timeline** list box in the thin client report page will be **1 week**.

Note that this timeline restriction does not apply to fixed timeline settings alone. If a user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification is equal to or below the lowest of the three values discussed above. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.2). The steps below discuss each of these settings and how they can be customized.

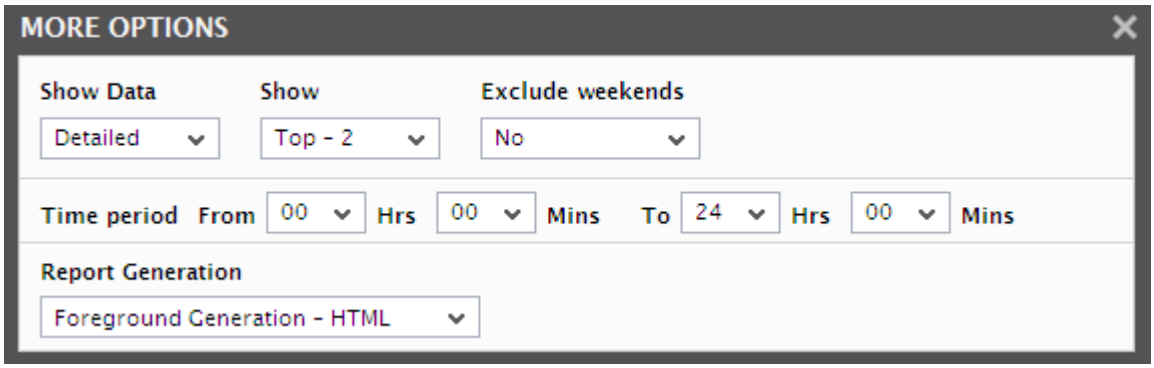


Figure 10.2: The default settings for generating a thin client Zone Performance reprot

8. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information base comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes much quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 10.2. By default, the **Detailed** option is selected in Figure 10.2 indicating that the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

   - Login to the eG administrative interface as 'admin'.
   - Select the **Manager** option from the **Settings** tile that appears when the button against the **Admin** tab is clicked.
   - From the **GENERAL SETTINGS** page that then appears, if you set the **Compute average/sum of metrics while trending** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.7) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

9. Next, specify the start time and end time for report generation against the **Time period** field.

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Configure -> Reports -> Consolidated. For more details regarding this page, refer to Section 3.4 of this manual.

10. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

You can configure the days of the week that need to be considered as a 'weekend' using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Configure -> Reports -> Consolidated. For more details regarding this page, refer to Section 3.4 of this manual.

11. Besides a pie chart, the report of type **Graph** will also invoke a comparative bar graph. This bar graph will, by default, reveal the top - 10 components (of a particular type or across all types) in the selected **Zone** in terms of the **Measure** chosen. This is why, the **Show** list is set to **Top-10** by default. You can however view any number of top/bottom players in a particular performance area by picking any **TOP** or **LAST** option from the **Show** list.

By default, the values displayed in the **Show** list range from **TOP-10** to **LAST-10**. This is because, the **Showtop** parameter in the **[INFOS]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory) is set to 10, by default. You can, if required, configure the **Show** list to display a different range of options. For this, specify a different number against the **Showtop** parameter, and save the **eg_report.ini** file.

12. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

Note

13. Finally, click the **Run Report** button to generate the report.
14. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 10.3, which will comprise of the following:
    - A distribution pie chart that reveals the number of components in different distribution ranges (see Figure 10.3). The distribution ranges are obtained based on the first of the configured functions for the chosen **Measure**. For instance, assume that *CPU utiization* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of *CPU utilization* in the zone report. Typically, both these configured values will appear only in a **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *CPU utilization* - alone is calculated for every component of the chosen component-type. The resulting pie chart enables administrators to deduce, at a glance, the number of components where the chosen performance metric has fared well and/or badly. Clicking on a particular slice in the pie chart lists the components that fall within the value range represented by that slice (see Figure 10.4). Against every component name, the actual values for each of the configured functions (both *Avg* and *Max*, in our example), and also the **Health %** of each of the components will be displayed. A zone-level **Summary** of the chosen **Measure** and the **Normal %** will also be available.

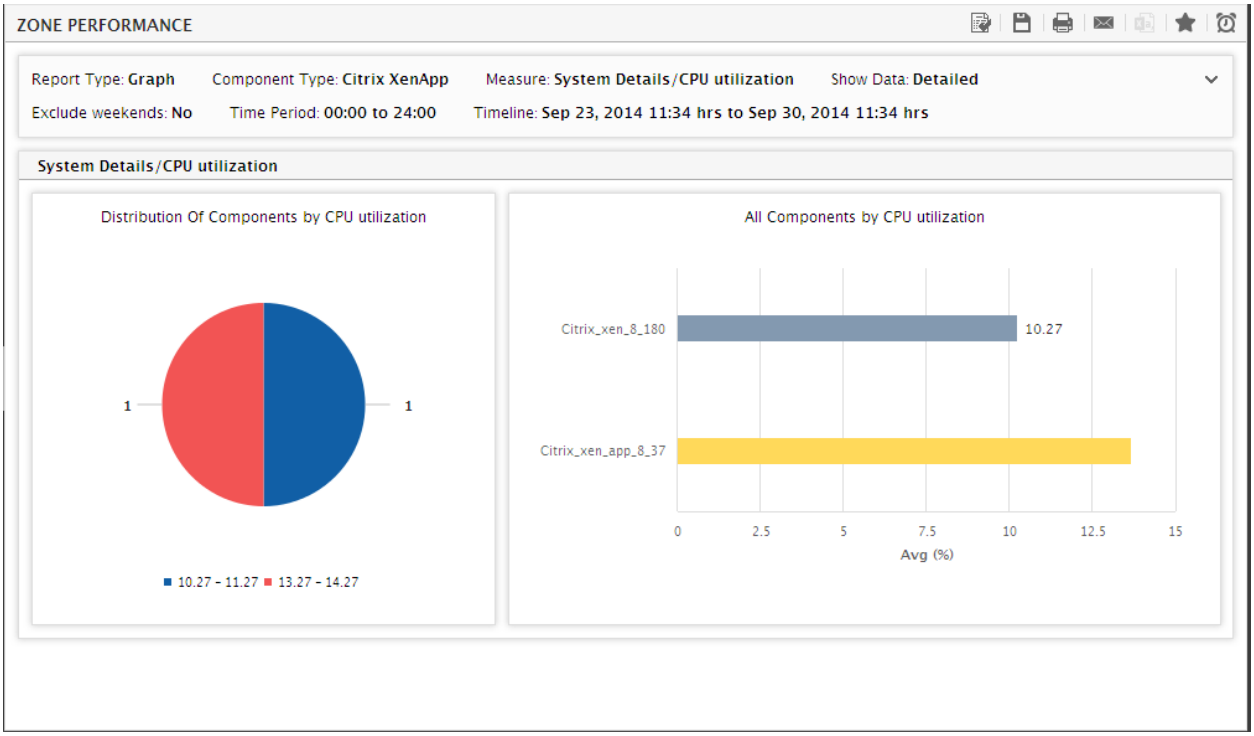


Figure 10.3: A graphical Zone report

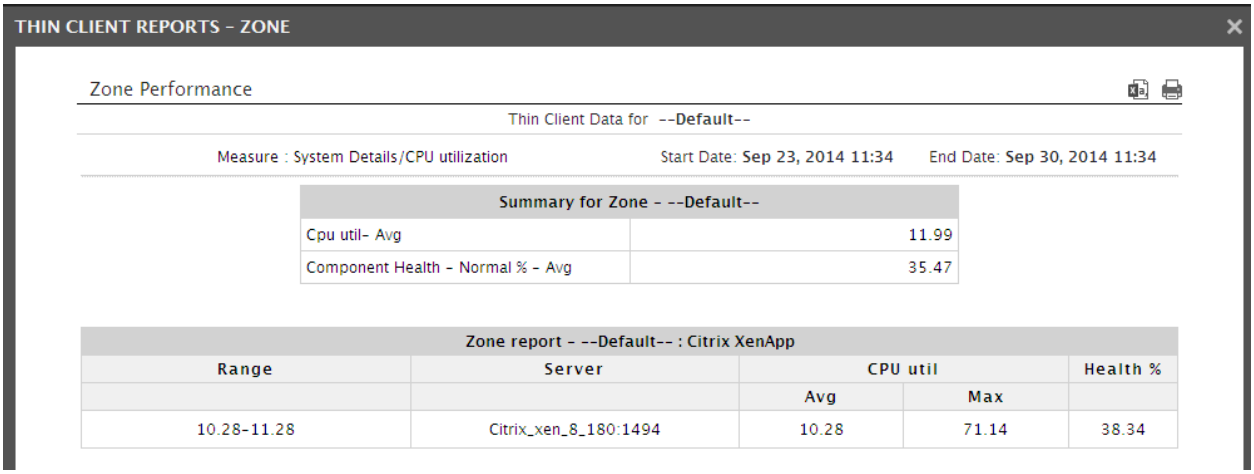


Figure 10.4: A list of components with *CPU utilization* in a given range

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Change the value of the **chartTypeForDist** parameter in the **[ZONE_REPORT]** section of this file from the default **Pie**, to **Bar**.
  - Save the **eg_report.ini** file.

Note

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Specify a number of your choice against the **nofRangeForDist** parameter in the **[ZONE_REPORT]** section of this file. By default, this parameter will hold the value 10.
  - Save the **eg_report.ini** file.

- Adjacent to the pie chart, you will find a bar chart that indicates the components that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *CPU utilization* measure, this bar chart reveals the components that are the top CPU-consumers. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**. Clicking on the bar corresponding to a server name results in a **Server Report** (see Figure 10.5) that enables you to focus on the performance of that server.

Server Report for Citrix_xen_app_8_37:1494: Citrix XenApp

MEASURES (UNIT)	AVG	MAX	MIN	
CPU util (%)	13.7128	96.1399	0.6216	
Free memory (MB)	625.5286	755.3906	485.1055	
Scan rate (Pages/sec)	59.5359	2800.977	0	
Disk read time (Secs)	0.0032	0.0614	0	
Disk write time (Secs)	0.0113	0.5123	0	
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0022	0.1629	0.0011	
TCP retransmit ratio (%)	-	-	-	
Num processes running (Number)	1	1	0	
Incoming traffic (Mbps)	0.0134	0.0383	0	
Outgoing traffic (Mbps)	0.0201	0.1081	0	
Current connections (Number)	7	25	0	
Used space (MB)	16543.4589	32388.6445	1039.5313	

Figure 10.5: The server report that appears upon clicking on a bar chart

- The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Specify a number of your choice against the **NoOfServersforChart** parameter in the **[ZONE_REPORT]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear.
  - Finally, save the **eg_report.ini** file.

- Similarly, you can configure the depth of the bars in the bar chart by specifying a numeric value against the **3DDepthforChart** parameter in the **[ZONE_REPORT]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory).
- By default, 10 bars will be visible in a single glance in the bar chart. If there are more bars, you will have to scroll down to view them. This default setting can be overridden by editing the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory). The **[ZONE_REPORT]** section of this file contains a **VisibleSamples** parameter that holds the default value 10. You can change this value.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[ZONE_REPORT]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[ZONE_REPORT]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

15. Unlike a **Graph** report, a **Data** report does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report.

16. If the **Report Type** is **Data** , then, like in the case of a **Graph** report, specify a **Time period**, indicate whether to **Exclude weekends** or not, indicate whether report is to be generated using **Detailed** data or **Trend** data, and then provide a report **Timeline**.
17. Finally, click the **Run Report** button.
18. The **Data** report will display two tables providing the user-configured details (see Figure 10.6) for the chosen component-type. By default, the **Summary** section of the report will display the average values of each of the configured measures across the farm. In the section providing per-server information though, eG Enterprise will display multiple values for a measure depending upon the number and type of functions that have been configured for the measure. For example, in Figure 10.6, note that the second section displays both the *Avg* and *Max* values for the *Cpu util* measure, but only the *Avg* value for the *Network Availability* measure.

Zone report - --Default-- : Citrix XenApp

Server	CPU Util		Free Memory		Disk Busy	Network Availability	Tcp Connections	Network Bandw
	Avg (%)	Max (%)	Avg (MB)	Max (MB)	Avg (%)	Avg (%)	Avg (Number)	Avg (%)
Summary	**10.49**	-	**734.53**	-	**3.65**	**100**	**5**	**0.01**
Citrix_xen_8...	10.49	58.4	734.53	897.6	3.65	100	5	0.01
Citrix_xen_a...	-	-	-	-	-	100	-	-

Zone report - --Default-- : Citrix XenDesktop Broker v5

Server	CPU Util		Free Memory		Disk Busy	Network Availability	Tcp Connections	License Server Ava
	Avg (%)	Max (%)	Avg (MB)	Max (MB)	Avg (%)	Avg (%)	Avg (Number)	Avg (%)
Summary	-	-	-	-	-	**100**	-	-
ctxbroker16...	-	-	-	-	-	100	-	-

Zone report - --Default-- : Citrix XenApp 4/5/6.x

Server	CPU Util		Free Memory		Disk Busy	Network Availability	Tcp Connections	Network Bandw
	Avg (%)	Max (%)	Avg (MB)	Max (MB)	Avg (%)	Avg (%)	Avg (Number)	Avg (%)
Summary	**10.89**	-	**736.16**	-	**2.67**	**100**	**4**	**0.01**
Citrix_serv_...	-	-	-	-	-	100	-	-
Citrix_serve...	10.89	58.4	736.16	897.82	2.67	100	4	0.01

Zone report - --Default-- : Hyper-V VDI

Server	Disk Busy	Network Availability	Tcp Connections	Network Delay	Cpu Utilization	Free Memory	Incoming Traffic	Outgoing Traffi
	Avg (%)	Avg (%)	Avg (Number)	Avg (Secs)	Avg (%)	Avg (MB)	Avg (Mbps)	Avg (Mbps)
Summary	**13.96**	**100**	**12**	**0**	**40.2**	**353**	**0.25**	**1.36**
Hypvdi	13.96	100	12	0	40.2	353	0.25	1.36

Zone report - --Default-- : Microsoft RDS

Server	CPU Util		Free Memory		Disk Busy	Network Availability	Tcp Connections	Network Bandw
	Avg (%)	Max (%)	Avg (MB)	Max (MB)	Avg (%)	Avg (%)	Avg (Number)	Avg (%)
Summary	-	-	-	-	-	**100**	-	-
term124:3389	-	-	-	-	-	100	-	-

Zone report - --Default-- : VMware vSphere VDI

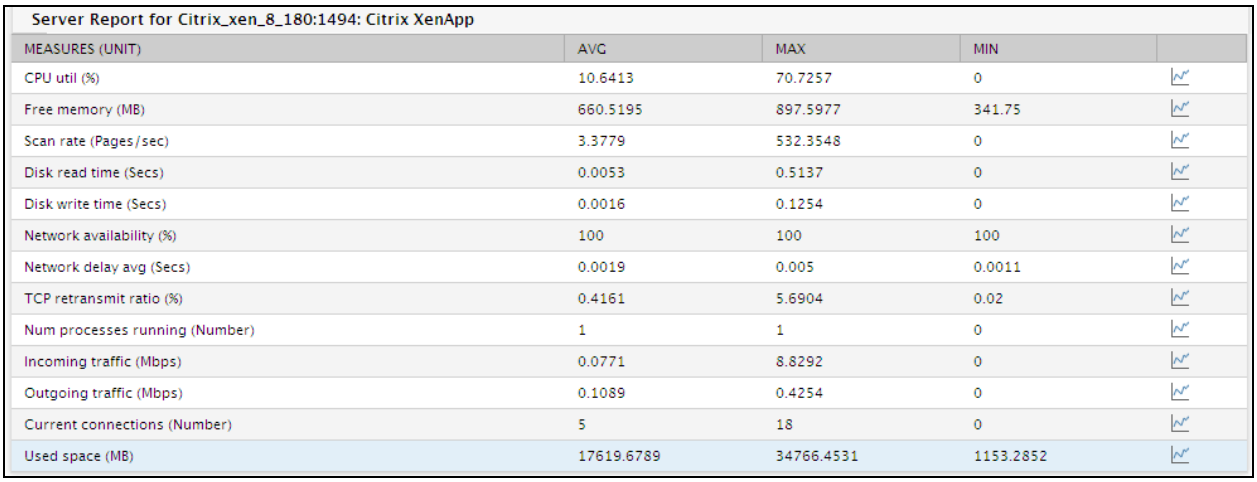
Server	Network Availability	Network Delay	Cpu Usage	Free Memory	Data Transmits	Data Received	Disk Usage	Powered C
	Avg (%)	Avg (Secs)	Avg (%)	Avg (MB)	Avg (Mbps)	Avg (Mbps)	Max (%)	Avg (Number)
Summary	**100**	**0**	**23.1**	**2975.7**	**0.35**	**0.35**	-	**19.67**
vdi136	100	0	41.58	1735.6	0.15	0.14	79.36	6
vdi14	100	0	19.82	2557.7	0.6	0.6	97.85	26
vdi155	100	0	-	-	-	-	-	-
Vdi15	100	0	7.89	4633.7	0.29	0.3	97.85	27

Figure 10.6: The Zone Data Report

19. Besides the above-mentioned details, the second section of the **Data** report also contains a **Health %** column. This column indicates the percentage of time a particular server has been in the Normal state during the chosen timeline. If a server has remained the constant victim of problems during the specified time period, then this percentage will obviously be low. To drill down to the root-cause of the issues affecting the server, click on the corresponding **Health %** value. This will lead you to the Executive report of the problem server, which will reveal

when and what type of problems were encountered by the server.

20. Also, to focus on the health of a particular server displayed in the zone **Data** report, click on the corresponding **Server** name in Figure 10.6. The **Server Report** will then appear (see Figure 10.7).



Server Report for Citrix_xen_8_180:1494: Citrix XenApp

MEASURES (UNIT)	AVG	MAX	MIN	
CPU util (%)	10.6413	70.7257	0	
Free memory (MB)	660.5195	897.5977	341.75	
Scan rate (Pages/sec)	3.3779	532.3548	0	
Disk read time (Secs)	0.0053	0.5137	0	
Disk write time (Secs)	0.0016	0.1254	0	
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0019	0.005	0.0011	
TCP retransmit ratio (%)	0.4161	5.6904	0.02	
Num processes running (Number)	1	1	0	
Incoming traffic (Mbps)	0.0771	8.8292	0	
Outgoing traffic (Mbps)	0.1089	0.4254	0	
Current connections (Number)	5	18	0	
Used space (MB)	17619.6789	34766.4531	1153.2852	

Figure 10.7: The Server report of the problem server in the farm report

As stated earlier, you can configure the information that needs to appear in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. For example, to generate the report depicted by Figure 10.6, specify the following in the **[ZONE_REPORT]** section of the **eg_report.ini** file:

```
[ZONE_REPORT]
Citrix_MF_XP:SystemTest:Cpu_util#Cpu util=Avg,Max
Citrix_MF_XP:SystemTest:Free_memory#Free Memory (MB)=Avg,Max
Citrix_MF_XP:DiskActivityTest:Percent_busy#Disk busy=Avg
Citrix_MF_XP:NetworkTest:Availability#Network Availability %=Avg
Citrix_MF_XP:TcpTest:Current_connections#Tcp conns=Avg
Citrix_MF_XP:NetworkTrafficTest:Bandwidth_usage#Network bandwidth usage %=Avg,Max
Citrix_MF_XP:CtxConnectionTest:Availability#Citrix availability %=Avg,Max
Citrix_MF_XP:CtxConnectionTest:Pkt_loss_pct#Citrix pkt loss %=Avg,Max
Citrix_MF_XP:CtxDisconnectsTest:Total_disconnects#Total disconnects=Avg,Max
```

Typically, measure configurations in the **[ZONE_REPORT]** section of the **eg_report.ini** file should be of the following format:

<InternalComponenttype>:<InternalTest>:<InternalMeasure>#<Display name of measure>=<Comma-separated list of functions>

Before proceeding with the configuring, determine the internal component type, test, and measure names, using the procedure discussed in Page 212 of this manual.

Accordingly, in the first line of the example above:

- *Citrix_MF_XP* is the *<InternalComponenttype>*
- *SystemTest* is the *<InternalTest>* that reports the measure of interest to us

- *Cpu_util* is the *<InternalMeasure>* that is to be displayed in the report page
- The display name of the measure is *Cpu util*, and finally,
- *Avg* and *Max* are the functions that are to be executed on the value of the *Cpu_util* measure
- The other measures that have been configured are: *Free_memory, Percent_busy, Availability (network), Current_connections, Bandwdith_usage, Availability (Citrix), Pkt_loss_pct, Total_disconnects.*

This indicates that for the *Citrix* servers in a zone, the **Summary** section of the report will display the average values of each of the configured measures. However, for each of the Citrix servers in the zone, the following values will be displayed in the second section of the report:

- The average (*Avg*) of *CPU utilization*
- The *Max* of *CPU utilization*
- The average (*Avg*) of *Free memory*
- The *Max* of *Free memory*
- The average (*Avg*) of *Percent_busy*
- The average (*Avg*) of network *Availability*
- The average (*Avg*) of *Current_connections*
- The average (*Avg*) of *Bandwidth_usage*
- The average and maximum (*Max*) of *Bandwidth_usage*
- The average (*Avg*) of connection *Availability*
- The maximum (*Max*) of connection *Availability*
- The average (*Avg*) *Packet loss*
- The maximum (*Max*) *Packet loss*
- The average (*Avg*) of *Total disconnects*
- The maximum (*Max*) of *Total disconnects*

- If functions such as *Avg*, *Max*, etc., are not explicitly configured in the **[ZONE_REPORT]** section in the manner discussed above, then the second section of the farm report will, by default, display the average (*Avg*) values for the configured measures.
- If a display name is not provided for a measure, then the actual measure name will automatically become the display name.

10.2 User Session Details Report

The key challenge in monitoring large thin client farms or virtual desktop environments is to keep track of the user activity on the servers in the farm. Using the **User Session Details Report** provided by eG Enterprise, administrators can figure out at what times the specified user logged in, which server the user accessed, how much CPU/memory was utilized by the user, and the applications/VMs used by the user. Like the other Citrix / VDI reports, the **User Session Details Report** too permits administrators to customize the view by specifying the measures to be displayed in the report and computations to be performed on the measures (such as *Avg, Max, Min* etc.). Additionally, you can generate a report for all the users who are part of the active directory groups in a domain.

To view the User session details report, do the following:

1. From the eG Reporter interface, select the **User Session Details** option from the **Citrix / VDI Reports** node of the **REPORTS BY FUNCTION** tree.
2. Figure 10.8 will then appear. To monitor the servers pertaining to a particular farm, select the **Zone** to which the servers in the farm have been added.

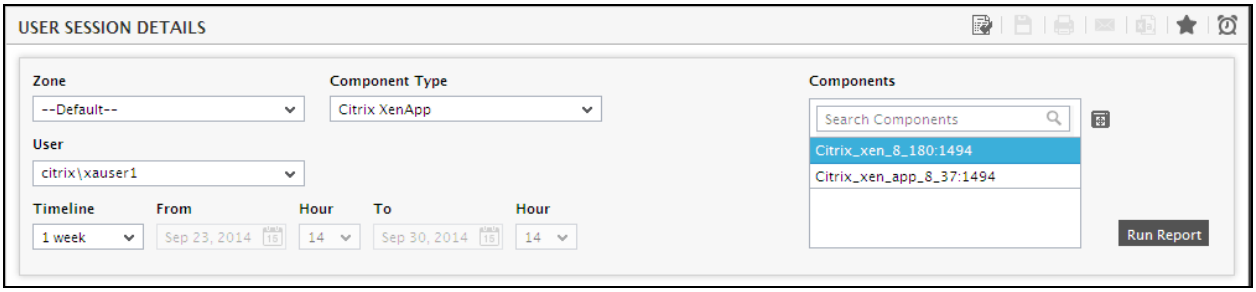


Figure 10.8: Generating a User Session Details Report

3. The **Component Type** list is then populated with the *Citrix XenApp, Citrix XenApp 4/5/6.x, VMware vSphere VDI, Hyper-V VDI,* and *Microsoft RDS* server types, based on the type of components present in the chosen **Zone**. Select a server-type from this list (see Figure 10.8).
4. If *Citrix XenApp* is chosen from the **Component Type** list, then a **Worker Group** list box will appear. Worker groups are collections of XenApp servers, residing in the same farm, that are managed as a single unit. You can publish applications to a worker group. Select a **Worker Group** from this list if you wish to view the usage of a **User** belonging to that particular worker group. By default, **Any** option is selected from this list.

The **Worker Group** list box will appear only if the **SHOW WORKER GROUPS** flag is set to **Yes** while configuring the **Citrix Users** test.

5. Next, choose the **User** whose usage needs to be tracked. For a report on all users to the chosen **Zone**, select *All* from **User**.

If the number of users to the zone exceeds the value configured for the **MoreUsers** parameter of the **[CITRIX_USER_REPORT]** section (in the **{EG_INSTALL_DIR}\manager\config\eg_report.ini** file), then a text box will be displayed instead of the list box for the **User** field. In the case of the text box, you will have to specify (and not choose) the name of the user for whom the report is to be generated. To generate a report for all available users, specify '*'.

6. The **Organize By** list box appears only when *All* option is selected from the **User** list. To generate this report for a particular thin client user, select the **Users** option from this list. To generate a thin client report for all users who belong to active directory groups, pick the **Active Directory Group** option from this list (see Figure 10.9).

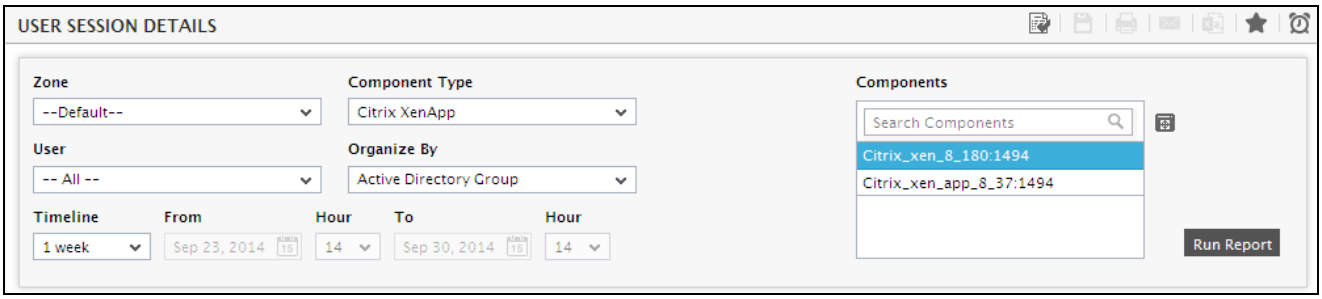


Figure 10.9: Selecting the Active Directory Group option

The **Organize By** list box will appear only if **the Report by security group** flag in the **SETTINGS FOR AD USERS REPORT** (see Figure 3.43) is set to **Yes**. Selecting the **Active Directory Group** option from this list box alone will not ensure you of generating an active directory group-wise user report. To generate the active directory group-wise user report, you need to discover the domains of the active directory groups in the first place. To know how to discover the domains and configure the Active Directory Groups for which this report is to be generated, refer Section 3.8.

7. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

- The default **Timeline** can be set using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Configure -> Reports -> Consolidated. For more details regarding this page, refer to Section 3.4 of this manual.
- Shorter the **Timeline** for a report, lighter would be the query that is executed on the database, and faster the report generation. Report **Timelines** that run across many weeks therefore, cause excessive strain on the database, thus slowing-down report generation. To save the eG backend from injury, eG Enterprise automatically restricts the maximum **Timeline** for which a thin client report can be generated to the lower of the following values:

- the value of the **CtxLoginTest** parameter in the **[DDD_CLEANUP]** section of the **eg_format.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory)
- the value of the **MaxTimeline** parameter in the **[MISC]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory).
- The maximum timeline for which the current user to eG Reporter is permitted to generate reports;

The **[DDD_CLEANUP]** section is where you define the interval (in days) at which the detailed diagnosis of specific tests is to be purged from the database. For the **CtxLoginTest**, the default interval is set to 32 days (i.e., just over a month), indicating that, by default, the detailed diagnosis of the **CtxLoginTest** is cleared from the database at the end of every month. Since critical thin client reports are generated based on the detailed diagnosis information, a **Timeline** that exceeds the duration set against **CtxLoginTest** would result in a report that displays invalid/no data. This duration however, is configurable. Similarly, you can also configure a **MaxTimeline** in the **[MISC]** section of the **eg_report.ini** file. By default, this parameter is set to **168** (hours), indicating that the maximum **Timeline** for a thin client report is **1 week** (i.e., 24 * 7 = 168 hours). Also, while creating user profiles using the eG administrative interface, an administrator can indicate the maximum timeline for which that user can generate reports, so as to avoid long running reports.

Now, assume that you have set the **CtxLoginTest** parameter to 21 days (i.e., 3 weeks) and the **MaxTimeline** parameter to 336 hours (i.e., 2 weeks). Also, say that user *john* with access rights to eG Reporter has been configured to generate reports for a maximum timeline of 1 week. Therefore, whenever user *john* logs into eG Reporter and attempts to generate a thin client report, eG Enterprise compares the three values, picks the lowest of the three, and sets that value as the maximum **Timeline** for thin client reports. In our example, the maximum timeline settings of user *john* (i.e., 1 week) is the lowest Therefore, the maximum value that will be available for selection from the **Fixed Timeline** list box in the thin client report page will be **1 week**.

Note that this timeline restriction does not apply to fixed timeline settings alone. If a user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification is equal to or below the lowest of the three values discussed above. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

8. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **User**. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.10). The steps below discuss each of these settings and how they can be customized.

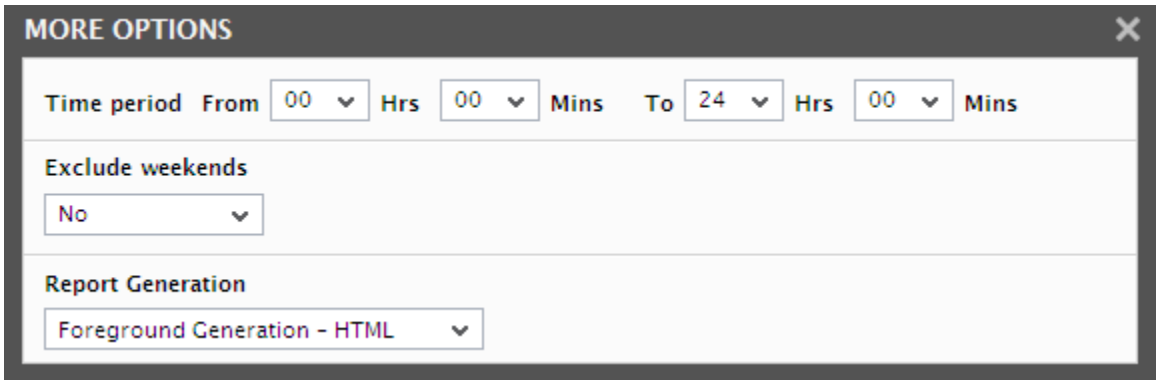


Figure 10.10: The default settings for generating the User Session Details report

9. Specify the start time and end time for report generation against the **Time period** field (see Figure 10.10).

Note

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

10. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

Note

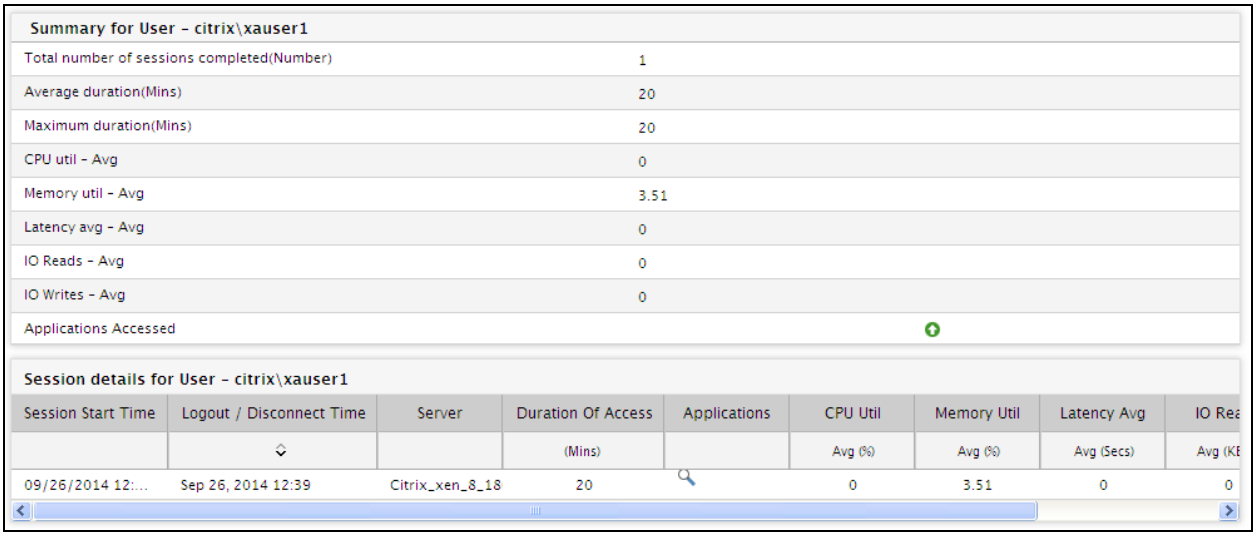
You can configure the days of the week that need to be considered as a 'weekend' using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To

schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

12. Finally, click the **Run Report** button to generate the report.
13. If a specific user is chosen from the **User** list and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, a report depicted by Figure 10.11 will appear upon clicking the **RUN REPORT BUTTON**.



Summary for User - citrix\xauser1

Total number of sessions completed(Number)	1
Average duration(Mins)	20
Maximum duration(Mins)	20
CPU util - Avg	0
Memory util - Avg	3.51
Latency avg - Avg	0
IO Reads - Avg	0
IO Writes - Avg	0
Applications Accessed	

Session details for User - citrix\xauser1

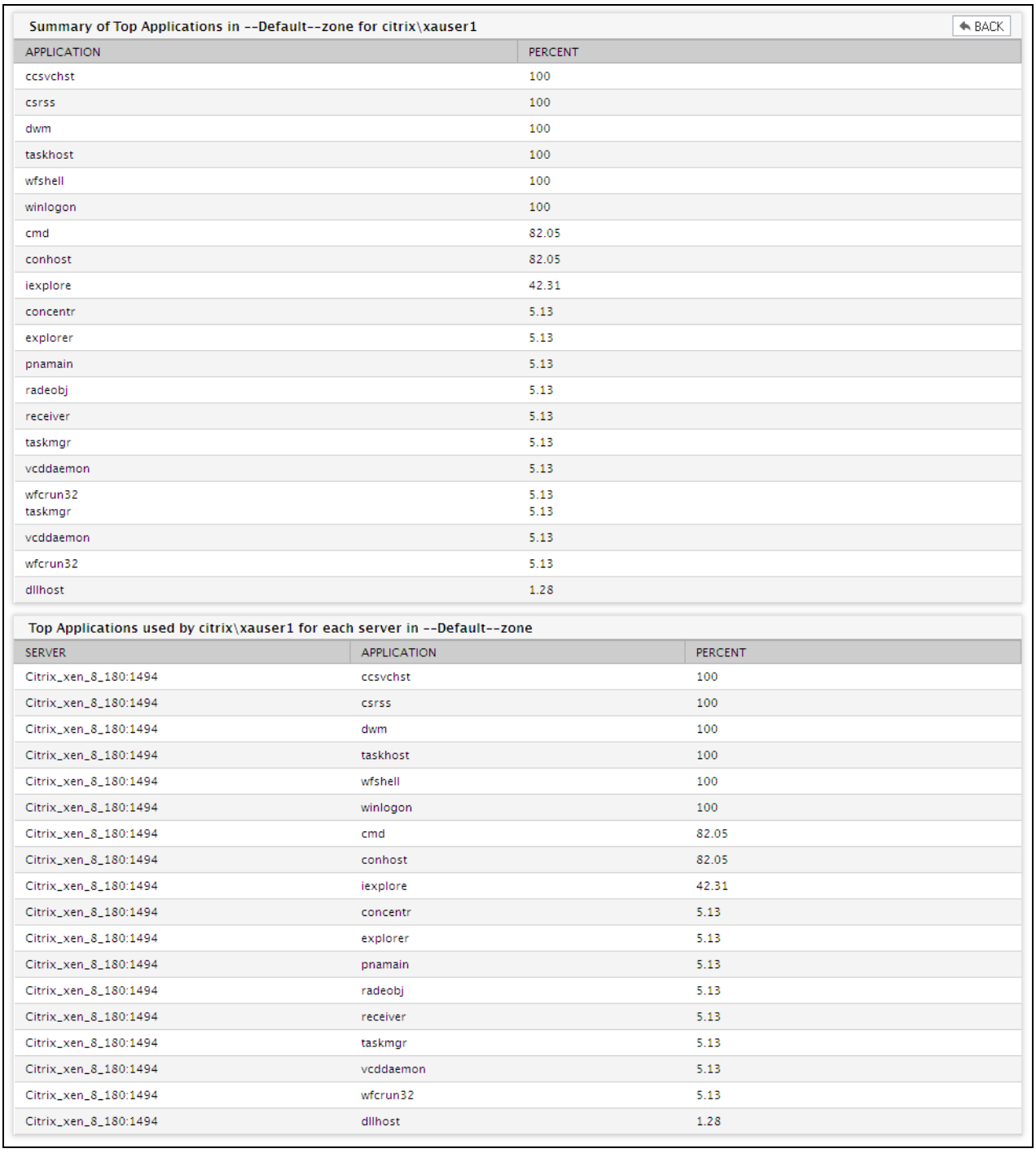
Session Start Time	Logout / Disconnect Time	Server	Duration Of Access	Applications	CPU Util	Memory Util	Latency Avg	IO Rea
			(Mins)		Avg (%)	Avg (%)	Avg (Secs)	Avg (KE
09/26/2014 12:...	Sep 26, 2014 12:39	Citrix_xen_8_18	20		0	3.51	0	0

Figure 10.11: The User Session Details report

14. The report consists of a **SUMMARY** section that displays the average and maximum duration for which the specified user accessed the servers in the farm, and the values of the user-configured measures aggregated at

the farm-level. The **SESSION DETAILS** section of the report displays the user-configured measures along with when and to which Citrix/Terminal/VDI/Hyper-V server the chosen user logged in and the duration of every access. For Citrix and Terminal servers alone, the **SESSION DETAILS** section is followed by another section that provides details of the disconnected sessions (if any) of the chosen user during the specified timeline. These details include the exact time at which the eG agent reported the disconnect, the session ID corresponding to the disconnected session, and the client type. Typically, when a user disconnects, the applications started by the user will keep running on the server consuming resources. By providing the complete details of disconnected sessions pertaining to a user, the User report enables administrators to identify times when the resources available to the server were unnecessarily locked owing to disconnects, investigate the reasons behind the disconnects, and endeavour to minimize these occurrences.

15. From the **User Report** for a Citrix XenApp/MF XP server in particular, you can determine which applications in the entire farm were excessively utilized by the given user, and which Citrix servers these applications are executing on. To do so, click on the arrow against the **Applications Accessed** link in the **SUMMARY** section. Figure 10.12 will then appear.



Summary of Top Applications in --Default--zone for citrix\xauser1

BACK

APPLICATION	PERCENT
ccsvchst	100
csrss	100
dwm	100
taskhost	100
wfshell	100
winlogon	100
cmd	82.05
conhost	82.05
iexplore	42.31
concentr	5.13
explorer	5.13
pnamain	5.13
radeobj	5.13
receiver	5.13
taskmgr	5.13
vcddaemon	5.13
wfcrun32 taskmgr	5.13 5.13
vcddaemon	5.13
wfcrun32	5.13
dllhost	1.28

Top Applications used by citrix\xauser1 for each server in --Default--zone

SERVER	APPLICATION	PERCENT
Citrix_xen_8_180:1494	ccsvchst	100
Citrix_xen_8_180:1494	csrss	100
Citrix_xen_8_180:1494	dwm	100
Citrix_xen_8_180:1494	taskhost	100
Citrix_xen_8_180:1494	wfshell	100
Citrix_xen_8_180:1494	winlogon	100
Citrix_xen_8_180:1494	cmd	82.05
Citrix_xen_8_180:1494	conhost	82.05
Citrix_xen_8_180:1494	iexplore	42.31
Citrix_xen_8_180:1494	concentr	5.13
Citrix_xen_8_180:1494	explorer	5.13
Citrix_xen_8_180:1494	pnamain	5.13
Citrix_xen_8_180:1494	radeobj	5.13
Citrix_xen_8_180:1494	receiver	5.13
Citrix_xen_8_180:1494	taskmgr	5.13
Citrix_xen_8_180:1494	vcddaemon	5.13
Citrix_xen_8_180:1494	wfcrun32	5.13
Citrix_xen_8_180:1494	dllhost	1.28

Figure 10.12: The top applications used by the chosen user

16. The first section of Figure 10.12 provides a farm-level summary of the utilization of the applications. The second section lists the servers in the farm, the applications executing on each of the servers, and the percentage of time every application on that server was utilized.
17. To return to the **User Report** click on the **BACK** button in Figure 10.12.
18. Now, to receive a quick update on the health of any of the servers in the chosen **Zone**, simply click on the

corresponding **Server** hyperlink in the **SESSION DETAILS** section of the **User Report.** A **Server Report** will then appear.

19. Also, if the user report pertains to a Citrix/Microsoft RDS user (i.e., if the **Component Type** chosen for the report is *Citrix XenApp, Citrix MF XP,* or *Microsoft RDS*), then, the **Session Details** section of the **User Report** will include an **Applications** column. If you click on the icon in the **Applications** column corresponding to a **Server** in the **Session Details** section, you will view the detailed diagnosis of the resource (CPU and memory) utilization of the individual applications (see Figure 10.13) on the Citrix/Terminal server.

Lists the processes executed by a user on a Citrix server

PID	PARENT	PROCESS	CPU(%)	MEMORY	IO READS	IO WRITE	PAGE FAU	VIRTUAL	HANDLES	PUBLISHE	IMAGE PA	WEBSITE	WEBSITE	WEBSITE
PID: Sep 30, 2014 13:54:11														
Sep 3...	10076	5408	csrss	0	0.0415	0	0	0	40.92	288	-	%Syst...	-	-
Sep 3...	10360	2556	ccsvc...	0	0.2379	0	0	0	107.25	336	-	C:\Pr...	-	-
Sep 3...	11348	10340	csrss	0	0.0376	0	0	0	40.92	291	-	%Syst...	-	-
Sep 3...	11552	984	taskh...	0	0.1076	0	0	0	89.57	162	-	taskh...	-	-
Sep 3...	11828	2556	ccsvc...	0	0.2213	0	0	0	103.09	318	-	C:\Pr...	-	-
Sep 3...	11988	10076	conhost	0	0.1277	0	0	0	73.59	57	-	\??\C:...	-	-
Sep 3...	2356	1368	dwm	0	0.0652	0	0	0	79.97	85	-	C:\Wi...	-	-
Sep 3...	3896	11348	conhost	0	0.0334	0	0	0	73.59	58	-	\??\C:...	-	-
Sep 3...	4200	7704	cmd	0	0.0287	0	0	0	71.82	49	-	C:\Wi...	-	-
Sep 3...	5604	7572	cmd	0	0.1214	0	0	0	71.82	49	-	C:\Wi...	-	-
Sep 3...	7572	7656	wfshell	0	0.2043	0	0	0	139.8	454	-	C:\Pr...	-	-
Sep 3...	7704	11216	wfshell	0	0.4214	0	0	0	141.02	460	-	C:\Pr...	-	-
Sep 3...	8080	984	taskh...	0	0.1131	0	0	0	89.57	157	-	taskh...	-	-
Sep 3...	8692	5408	winlo...	0	0.1256	0	0	0	95.91	262	-	winlo...	-	-
Sep 3...	9072	1368	dwm	0	0.0694	0	0	0	79.97	86	-	C:\Wi...	-	-

Figure 10.13: Detailed diagnosis of the resource utilization of applications

20. In addition to the above, the **User Report** also enables you to figure out how the user-configured measures displayed in the **SESSION DETAILS** section performed during the period for which the user was accessing the server. To achieve this, just click on the value of the measure against a **Server** in the **SESSION DETAILS** section. A graph depicted by Figure 10.14 will then appear.

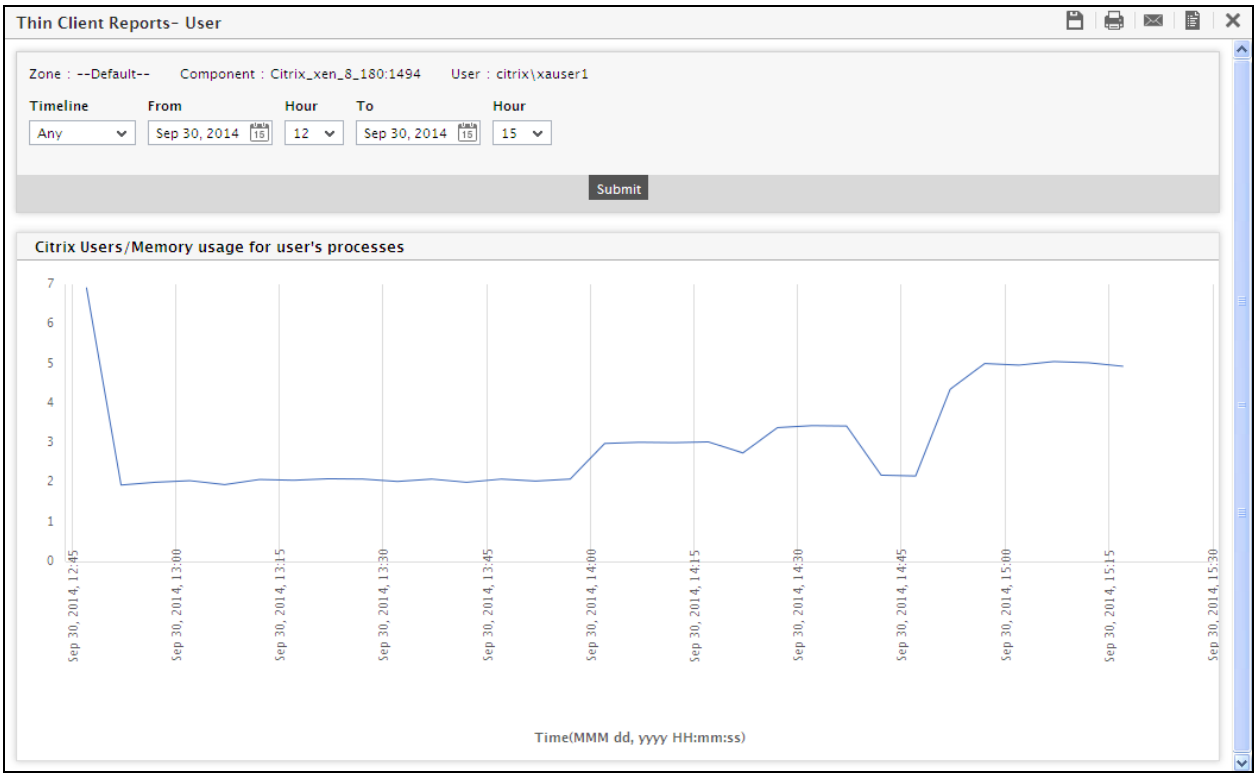
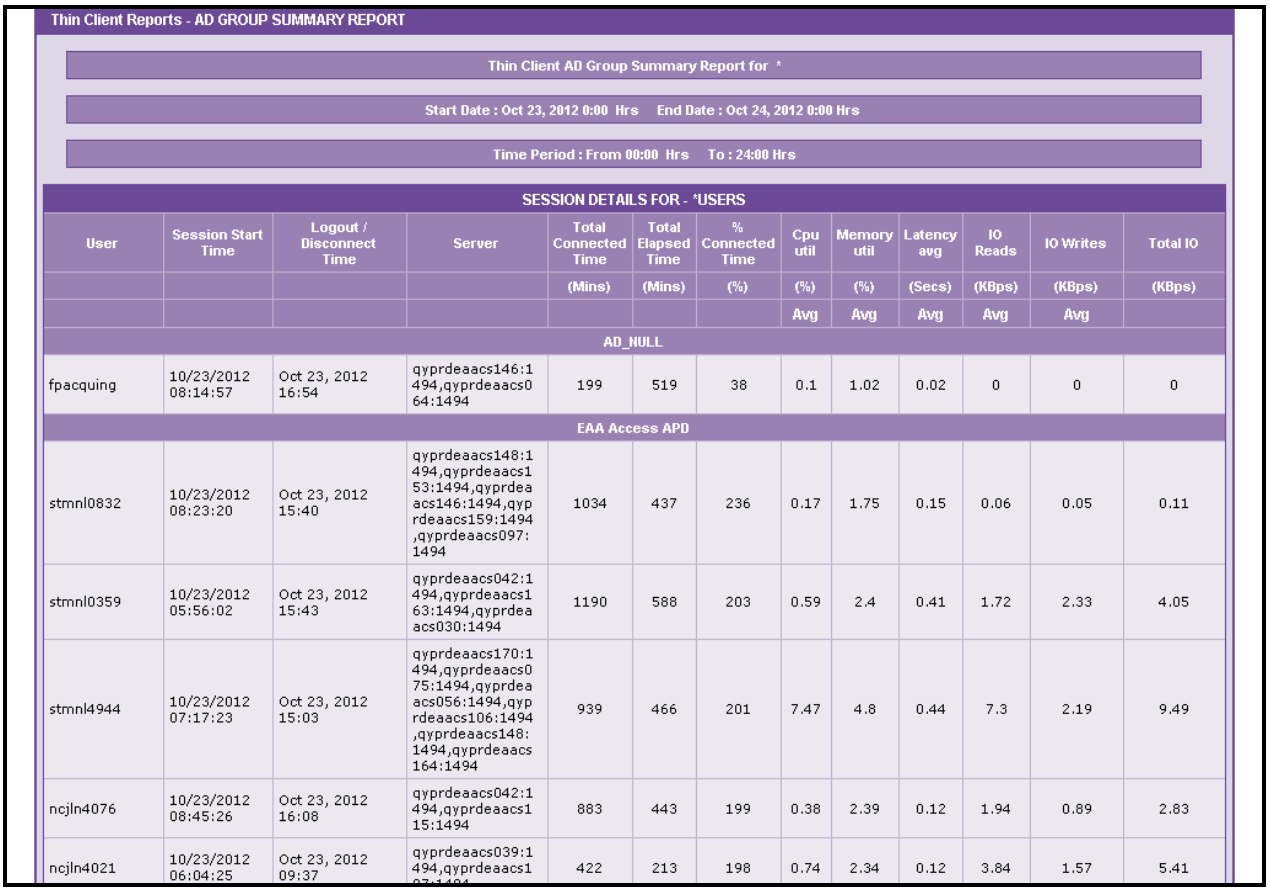


Figure 10.14: The graph of a user-configured measure

21. Using the graph of Figure 10.14, administrators can determine whether the server has experienced any spikes in resource usage during the user access. If so, then, this could indicate that the user was performing resource-intensive activities on the server, and could warrant a thorough investigation.

22. If you have chosen *All* from the **User** list, the **Active Directory Group** is chosen from the **Organize By** list box and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, a report depicted by Figure 10.15 will appear upon clicking the **Run Report** button.

23. The **SESSION DETAILS** section of the report displays the user-configured measures along with when and to which Citrix/Terminal/VDI server the users of an Active Directory group logged in, the duration of their access and the time. If the users are not part of any of the active directory groups, then the session details of such users will be listed under the **AD_NULL** section.



Thin Client Reports - AD GROUP SUMMARY REPORT

Thin Client AD Group Summary Report for *

Start Date : Oct 23, 2012 0:00 Hrs End Date : Oct 24, 2012 0:00 Hrs

Time Period : From 00:00 Hrs To : 24:00 Hrs

SESSION DETAILS FOR - *USERS

User	Session Start Time	Logout / Disconnect Time	Server	Total Connected Time	Total Elapsed Time	% Connected Time	Cpu util	Memory util	Latency avg	IO Reads	IO Writes	Total IO
				(Mins)	(Mins)	(%)	(%)	(%)	(Secs)	(KBps)	(KBps)	(KBps)
							Avg	Avg	Avg	Avg	Avg	
AD_NULL												
fpacquing	10/23/2012 08:14:57	Oct 23, 2012 16:54	qyprdeaacs146:1494,qyprdeaacs064:1494	199	519	38	0.1	1.02	0.02	0	0	0
EAA Access APD												
stmnl0832	10/23/2012 08:23:20	Oct 23, 2012 15:40	qyprdeaacs148:1494,qyprdeaacs153:1494,qyprdeaacs146:1494,qyprdeaacs159:1494,qyprdeaacs097:1494	1034	437	236	0.17	1.75	0.15	0.06	0.05	0.11
stmnl0359	10/23/2012 05:56:02	Oct 23, 2012 15:43	qyprdeaacs042:1494,qyprdeaacs163:1494,qyprdeaacs030:1494	1190	588	203	0.59	2.4	0.41	1.72	2.33	4.05
stmnl4944	10/23/2012 07:17:23	Oct 23, 2012 15:03	qyprdeaacs170:1494,qyprdeaacs075:1494,qyprdeaacs056:1494,qyprdeaacs106:1494,qyprdeaacs148:1494,qyprdeaacs164:1494	939	466	201	7.47	4.8	0.44	7.3	2.19	9.49
ncjln4076	10/23/2012 08:45:26	Oct 23, 2012 16:08	qyprdeaacs042:1494,qyprdeaacs115:1494	883	443	199	0.38	2.39	0.12	1.94	0.89	2.83
ncjln4021	10/23/2012 06:04:25	Oct 23, 2012 09:37	qyprdeaacs039:1494,qyprdeaacs1	422	213	198	0.74	2.34	0.12	3.84	1.57	5.41

Figure 10.15: The Active Directory group wise Thin client User report

24. On the other hand, if the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

To configure the details that need to appear in the **SUMMARY** and **SESSION DETAILS** section of the report, edit the **[CITRIX_USER_REPORT]** section of the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. For example, you can specify the following in the above-mentioned section:

```
[CITRIX_USER_REPORT]
Citrix_MF_XP:CtxXpUserTest:Cpu_util#Cpu utilization=Avg,Max
Citrix_MF_XP:CtxXpUserTest:Mem_util#Mem util=Avg,Max
Citrix_MF_XP:CtxXpUserTest:Latency_avg=Avg,Max
```

From the above example, the following format can be inferred for the measure specification.

<InternalComponenttype>:<InternalTest>:<InternalMeasure>#<Display name of Measure>=<Comma-separated list of functions>

Before proceeding with the configuration, determine the internal component-type, test, and measure names that you intend using in your measure specification, using the procedure discussed in Page 212 of this manual.

Accordingly, in the first line of the example above:

- *Citrix_MF_XP* is the *<InternalComponenttype>*
- *CtxXpUserTest* is the *<InternalTest>*
- *Cpu_util* is the *<InternalMeasure>*
- *Cpu utilization* is the *<Display name of Cpu_util>*

Note

If a display name is not provided for a measure, then the actual measure name will automatically become the display name.

- *Avg* and *Max* the functions that will be executed on the value of the *Cpu_util* measure.

Note

By default, the **Summary** section will display only the average (*Avg)* values of the configured measures. However, if specific function names are provided in the **[CITRIX USER_REPORT]** section in the format discussed above, then such a specification will override the default setting.

10.3 User Activity Report

In large thin client farms or virtual desktop environments, keeping track of the user activity on the servers of the farm is a difficult task. Moreover it becomes too tedious to figure out which user is continuously engaged in the maximum utilization of the resources. The **USER ACTIVITY** provides a solution for this. Using this report, you can easily figure out the users who are consuming more resources on the server.

To generate the U**SER ACTIVITY** report, do the following:

1. Select the **User Activity** option from the **Citrix / VDI Reports** option of the **REPORTS BY FUNCTION** tree.
2. Figure 10.16 will then appear. To monitor the servers in a farm, select the **Zone** to which the servers in the farm have been added.

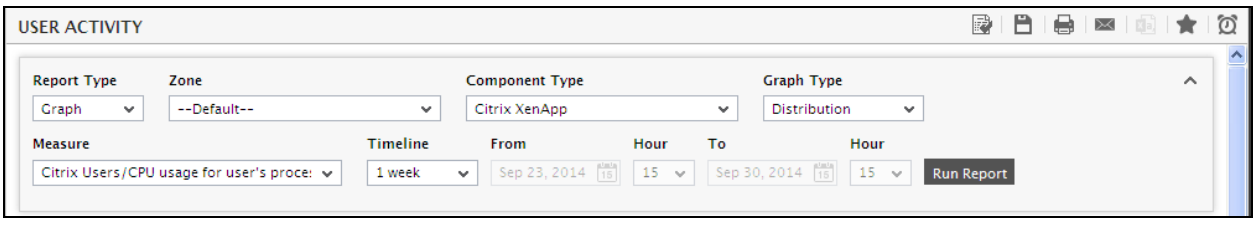


Figure 10.16: Selecting the criteria for the Thin Client - User Activity report

3. Then, for generating the report on users associated with a particular component type, select a **Component**

Type.

4. Select the components for which the report is to be generated from the **Components** list box. By default, all components of the chosen **Component Type** will be selected from the **Components** list. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Components** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.
5. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. A **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and **Select** the ones to be included in the top-n analysis easily.
6. Next, select **Graph** from the **Report Type** field to generate a graphical report. For a data report, select the **Data** option. If **Graph** option is selected, then an additional **Graph Type** list box will appear. By default, **Distribution** option will be chosen from this list box.
7. If **Graph** option is chosen as the **Report Type** and the **Distribution** option is chosen from the **Graph Type** text box, then an additional **Measure** list box will appear in the report configuration section. This implies that across all the servers of the chosen **Component Type**, the distribution of users will be represented graphically for the chosen **Measure**. Likewise, if **Data** option is chosen as the **Report Type**, then a **Based On Measure** option will appear which implies that the generated report will be sorted in descending order by default, based on the chosen option.
8. Specify the name of the user whose activity is to be monitored in the **User** text box. In large thin client environments where hundreds of users are prevalent, the administrators do not prefer to generate a report on the activity of a single user. In such a case, to generate a comprehensive report on the activity of all the users of the thin client farm, specify * in this text box.
9. By default, the report provides the details of only the **Top-10** users' activity in the chosen **Component**. You can choose a different top-n / last-n option from the **Show Top** list, if need be.

By default, the values displayed in the **Show** list range from **TOP-10** to **LAST-10**. This is because, the **Showtop** parameter in the **[INFOS]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory) is set to 10, by default. You can, if required, configure the **Show** list to display a different range of options. For this, specify a different number against the **Showtop** parameter, and save the **eg_report.ini** file.

10. Specify the report **Timeline**. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

11. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick an option from the **Components** list. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.17). The steps below discuss each of these settings and how they can be customized.

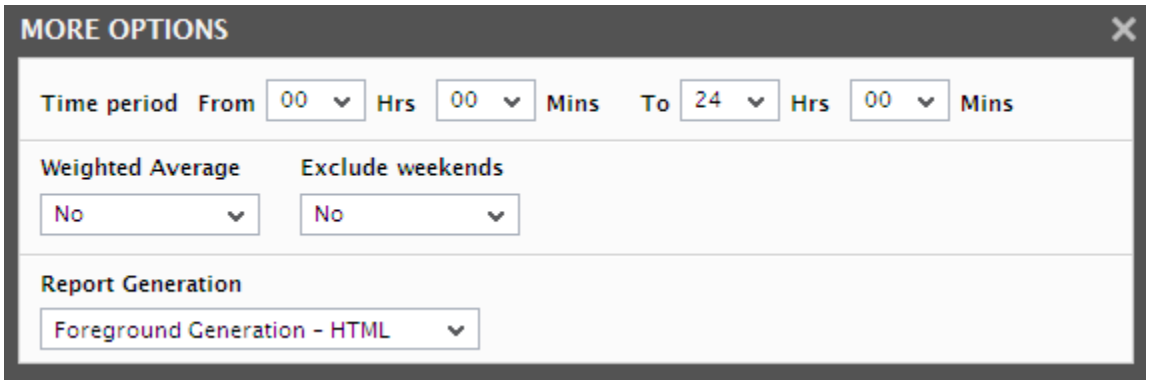


Figure 10.17: The default settings for generating the User Activity report

12. Specify the start time and end time for report generation against the **Time period** field (see Figure 10.17).
13. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MEASURE_GROUP]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

14. Using the **Weighted Average** flag, you can indicate how the *Avg* value is to be computed for a chosen measure for the purpose of this report. The status of the **Weighted Average** flag is relevant only if the **Test** chosen is a descriptor-based test, and the descriptors are dynamic in nature. For instance, the *Citrix Users* test in our example auto-discovers the users who are currently active on a Citrix XenApp farm. For each user who has logged into the Citrix XenApp, the test reports a variety of statistics. Unlike descriptors such as disk partitions or processors that rarely change, the users are dynamic descriptors, which may change often; in other words, a user who is logged in currently, may opt to log out and may not login at all during the next measurement period. The *Citrix Users* test will neither report metrics for the inactive descriptors nor display it in the eG monitoring console. This is why, users in the *Citrix Users* test are considered 'dynamic descriptors'.
15. By default, this report compares the *Avg* value of the chosen measure across all selected descriptors. Since the **Weighted Average** flag is set to **No** by default, this *Avg* is computed as the ratio of the sum total of the measure values reported by a descriptor during the given timeline and the total number of times the test is executed during the same timeline. In case of dynamic descriptors however, the *Avg* values so computed may not reveal the 'true picture of performance'. This is because, the test may not discover or report metrics for dynamic descriptors throughout a given timeline. For example, take the case of the *Citrix Users* test. Say, two users - namely, 'A' and 'B' have logged into the Citrix XenApp server. During its first measurement period; the CPU Utilization for a user session is registered as 2% and 8% respectively. Assume that the second time the *Citrix Users* test ran, it captured 5% as the CPU Utilization of user 'A'. User 'B' however was inactive during the second measurement period, and hence, was not discovered at all. If the **Weighted Average** flag is set to **No** by default, then, this report will plot the Avg value of 4% (3+5=8/2=4) for user 'A' and 4% (8/2=4) again for user 'B'. If you notice, unlike user 'A', where 8% of CPU was utilized over a period of time, in case of user 'B', 8% of CPU was utilized at one shot! Logically therefore, user 'B' has to be ranked above user 'A' in terms of CPU utilization. However, since the default Avg value computation does not clearly bring out this difference, both user 'A' and 'B' are treated at par in this report! This is why, in case of dynamic descriptors, you may want to set the **Weighted Average** flag to **Yes**. In this case, the eG Enterprise system expresses *Avg* as the ratio of the sum total of the measure values reported by a descriptor during a given timeline and the 'total number of times that descriptor was active' during the same timeline. This implies that if the **Weighted Average** flag is set to **Yes** in the example above, the Avg value for user 'A' will continue to be 4 (3+5=8/2=4), but the same for user 'B' will be 8 MB (8/1=8). In this report therefore, user 'B' will be placed above user 'A', thereby accurately pointing you to the top user who is consuming maximum CPU resources.
16. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name

with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

17. Finally, click the **Run Report** button. Figure 10.18 will now appear.

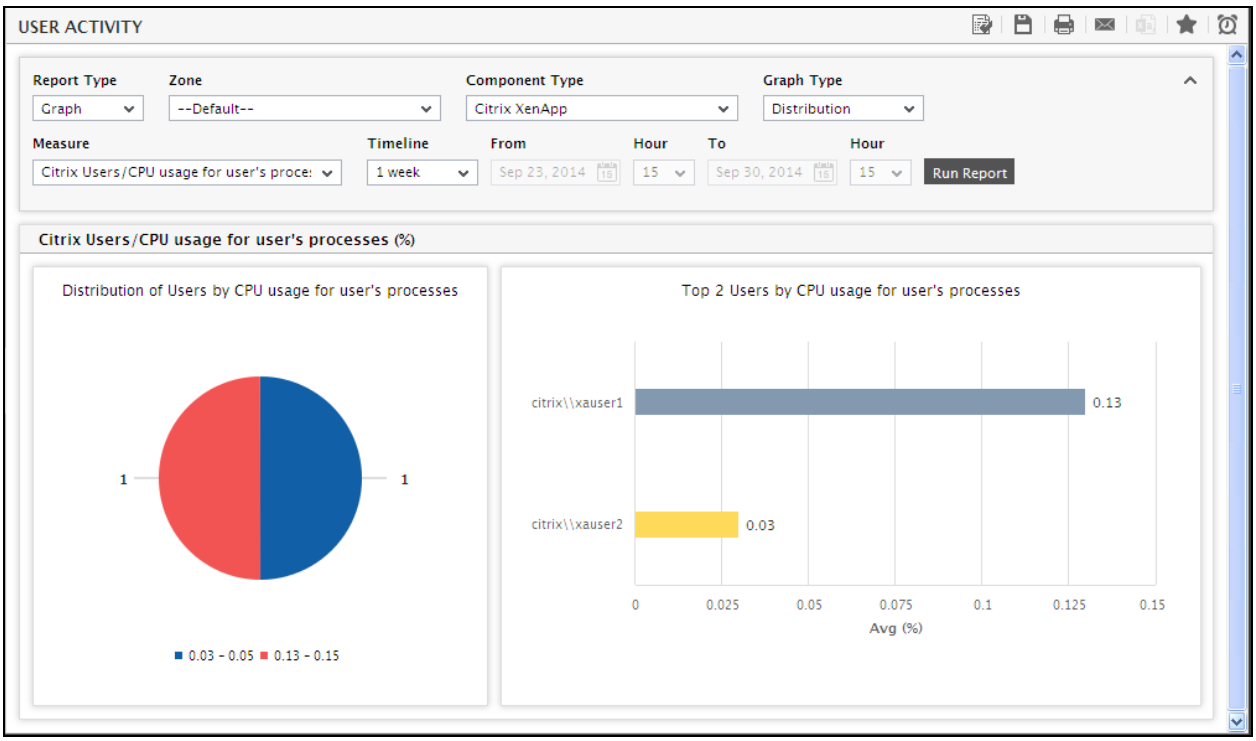


Figure 10.18: The User Activity report

18. Clicking on a slice of the pie chart will reveal the user who is currently in the specified range (see Figure 10.19).

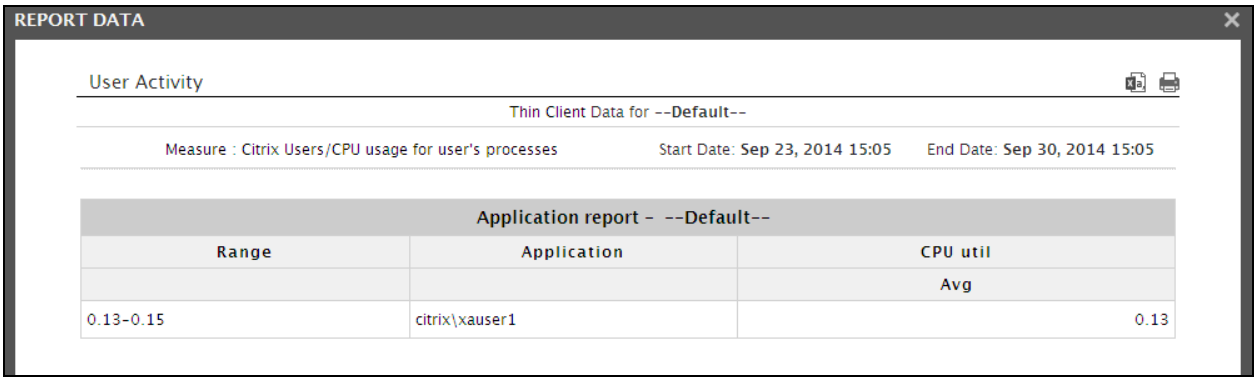


Figure 10.19: The data that appears upon clicking on the slice of the pie chart

19. If the **Timeline** option is chosen from the **Graph Type** and the **Weighted Average** list is set to **Yes**, then the report generated will appear as shown in Figure 10.20.

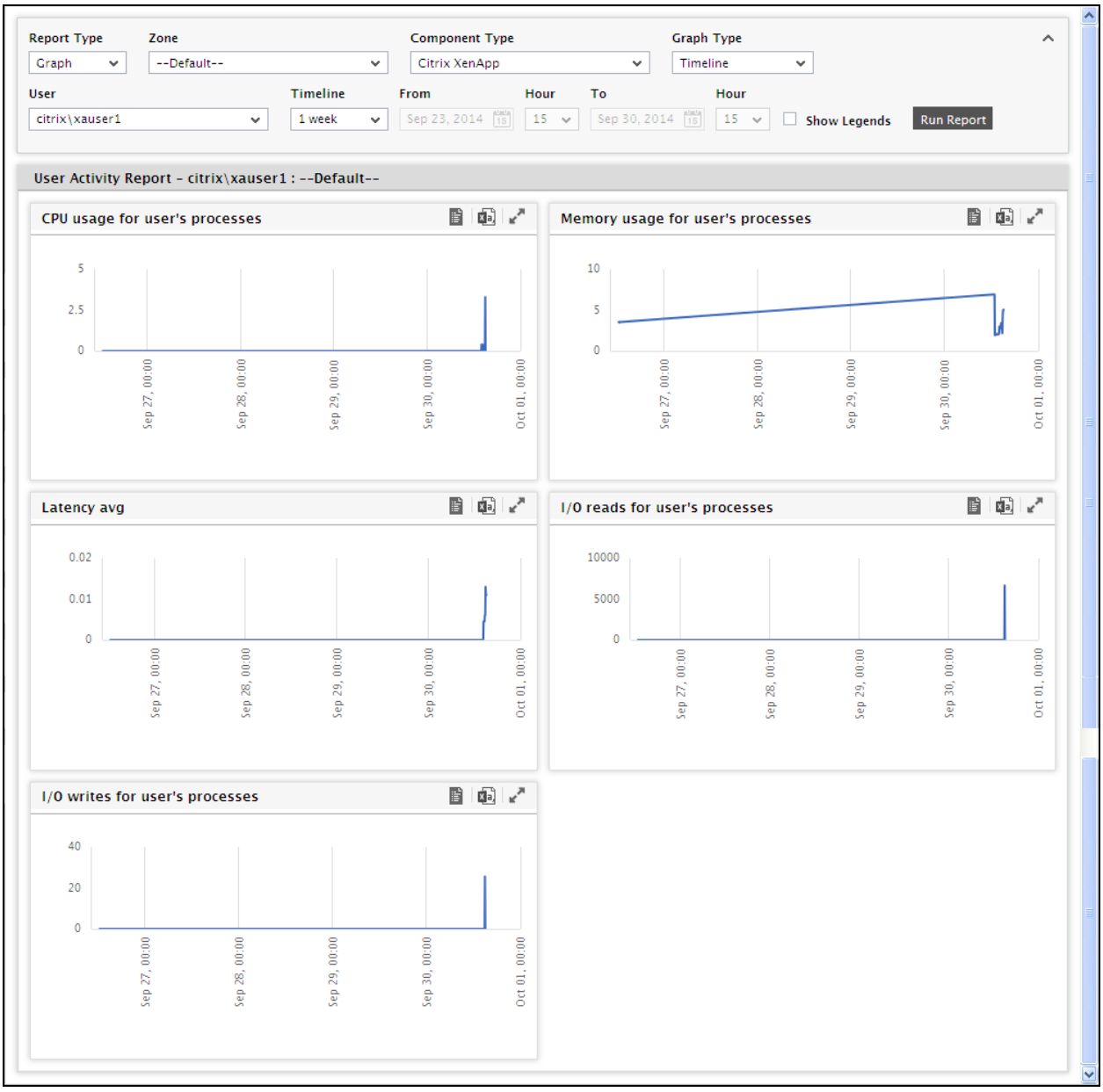


Figure 10.20: The User Activity report when the Timeline option is chosen

20. Figure 10.22 shows a tabular **Thin Client User Activity** report for a chosen server. By default, for every user displayed in this table, the following metrics will be displayed:

- The *Avg* CPU utilization
- The *Avg* Memory utilization
- The *Avg* latency
- The *Avg* IO reads performed by the user and
- The *Avg* IO Writes performed by the user

While these default metrics cannot be changed, you can, however, configure functions other than *Avg* to be

executed on the values reported by these metrics. Similarly, additional metrics can also be configured for display in the report. Though the generated report is initially sorted based on the column selected from the **Sort by** list, the displayed report can once again be sorted based on any column. Simply clicking on the arrow button present in each column will ensure you that the report is sorted based on the chosen column.

21. Suppose if all components had been chosen instead of a particular **Component**, or all users have been chosen instead of a particular **User**, then an additional **Aggregate across servers** field will appear, as depicted by Figure 10.21.

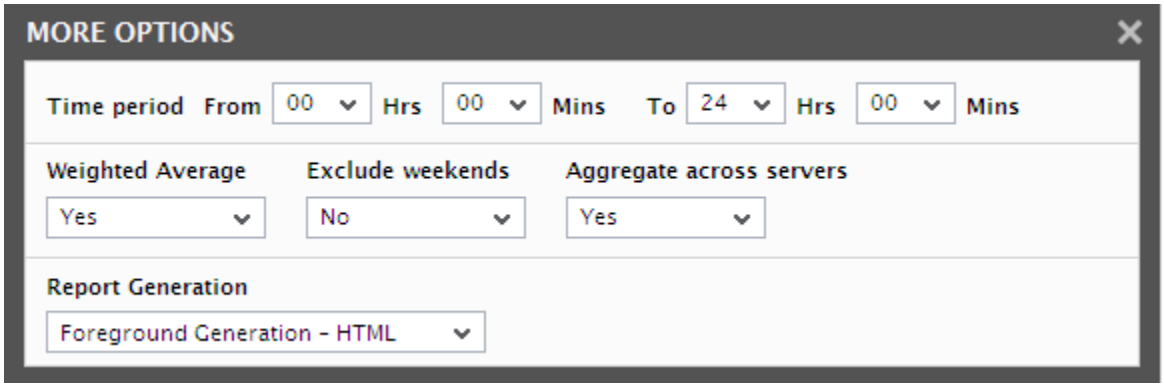


Figure 10.21: Selecting the zone based aggregation option

22. While monitoring the user activity on all the servers in a chosen **Zone**, you can indicate whether the measures to be displayed in the report are to be aggregated at the zone-level or the individual server-level. Selecting the **Yes** option from the **Aggregate across servers** list will ensure that the user activity determining metrics displayed in the report for the chosen server(s) is aggregated across all the servers in the selected zone (see Figure 10.22).

User Activity Report - Citrix XenApp:--Default--

User	CPU Util	Memory Util	Latency Avg	IO Reads	IO Writes
	Avg (%)	Avg (%)	Avg (Secs)	Avg (KBps)	Avg (KBps)
citrix\administrator	0.08	6.05	0.0	14.36	0.52
citrix\ctxuser	0.0	11.74	0.0	0.9	0.9
citrix\gptest	0.07	11.46	0.0	1.79	0.44
citrix\xauser1	0.06	4.37	0.0	89.95	0.35
citrix\xauser2	0.01	1.1	0.05	0.0	0.0

Figure 10.22: Zone based aggregation for the thin client user activity report

23. On the other hand, if you select **No** from the **Aggregate across servers** list, then the report will reflect the name of the user and the server on which the user is currently active in the selected zone - in other words, the report will display a different set of metrics for every server/user combination (see Figure 10.23).

User Activity Report - Citrix XenApp:--Default--

Server /User	CPU Util	Memory Util	Latency Avg	IO Reads	IO Writes
	Avg (%)	Avg (%)	Avg (Secs)	Avg (KBps)	Avg (KBps)
Citrix_xen_8_180:1494 / citrix\xauser2	0.01	1.1	0.05	0.0	0.0
Citrix_xen_8_180:1494 / citrix\xauser1	0.0	0.18	0.0	3.75	0.01
Citrix_xen_8_180:1494 / citrix\gptest	0.0	0.15	0.0	0.02	0.01
Citrix_xen_8_180:1494 / citrix\ctxuser	0.0	0.01	0.0	0.0	0.0
Citrix_xen_8_180:1494 / citrix\administrator	0.0	0.28	0.0	0.66	0.02

Figure 10.23: Server based aggregation for the thin client user activity report

In order to configure additional information to be displayed in the report, you will have to edit the **[CITRIX_USER_ACTIVITY_REPORT]** section of the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. By default, the **[CITRIX_USER_ACTIVITY_REPORT]** section will contain the following specifications:

```
[CITRIX_USER_ACTIVITY_REPORT]
Citrix_MF_XP:CtxXpUserTest:Cpu_util#Cpu util=Avg
Citrix_MF_XP:CtxXpUserTest:Mem_util#Memory util=Avg
Citrix_MF_XP:CtxXpUserTest:Latency_avg#Latency avg=Avg
Citrix_MF_XP:CtxXpUserTest:IO_reads#IO Reads=Avg
Citrix_MF_XP:CtxXpUserTest:IO_writes#IO Writes=Avg
```

Close scrutiny of the default specifications reveals the following format:

<InternalComponentType>:<InternalTest>:<InternalMeasure>#<Display name of Measure>=<Comma-separated list of functions to be executed on the value of the Measure>

Accordingly, in the first line of the default specification:

- *Citrix_MF_XP* is the *<InternalComponentType>*
- *CtxXpUserTest* is the *<InternalTest>*
- *Cpu_util* is the *<InternalMeasure>*
- *Cpu util* is the *<Display name of Number_of_processes>*

If a display name is not provided for a measure, then the actual measure name will automatically become the display name.

- *Avg* is the function that will be executed on the value of the *Cpu_util* measure

To ascertain the internal component-type, test, and measure names, follow the procedure detailed in Page 212 of this manual. This indicates that by default, the *Avg* of the *Latency_avg*, *IO_reads*, *IO_writes*, *Cpu_util*, and *Mem_util* measures of the *CtxAppTest* will be available in every 'Citrix' application report. Similarly, by default, the *Avg* of the

Number_of_processes, *Cpu_util*, and *Mem_util* measures of the *TermAppTest* will be available in every 'Terminal server' application report.

The **default measures** mentioned above **should not be removed** from the **[CITRIX_USER_ACTIVITY_REPORT]** section. However, the following details pertaining to these default measures can be changed, if need be:

- The display name of the default measures
- The functions to be executed on the default measure. For example, if you want the application report to display both the *Avg* and *Max* values of the *Cpu_util* measure, the default specification can be changed as follows:

```
Citrix_MF_XP:CtxXpUserTest:Cpu_util#Cpu util=Avg,Max
```

Besides, you can add more measure specifications in the format specified above. **Before configuring more measures, determine the internal component type, test, and measure names using the procedure discussed in Page 212 of this manual. Note that a report can contain a maximum of 17 columns of data.**

- While generating any of the above-mentioned **THIN CLIENT** reports, you can make sure that specific descriptors are omitted from the *Avg, Max, Min* computations for the configured measures, by specifying the descriptor names in the following format in the **[INFOS_TO_BE_OMITTED]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory):

<InternalTest>:<InternalMeasure>=<Descriptor>

For example, to ensure that the *Summary* descriptor of *SystemTest* is excluded while calculating the average of *Cpu_util*, provide the following specification in the **[INFOS_TO_BE_OMITTED]** section:

```
[INFOS_TO_BE_OMITTED]
SystemTest:Cpu_util=Summary
```

- If the eG license disables the detailed diagnosis capability, or if the diagnosis frequencies are set to 0, then the following **THIN CLIENT** reports cannot be generated: **APPLICATION**, **USER**, and **SESSION**.

10.4 User Session Analysis Report

Server farms are often sized based on expectations of the number of simultaneous sessions that the farm will be required to support and the average duration of each session. A significant deviation in either the number of simultaneous sessions or the duration of sessions may warrant a rethink of the farm's capacity. Hence, session activity in a farm is one of the most critical metrics to track and report on. An analysis of the session activity in a farm can indicate:

- How many simultaneous sessions does the farm handle?
- Is the session load evenly balanced across the servers in the farm?
- What is the average duration of a user's session?
- How many unique users are logging into the farm?
- Which are the users with longest sessions (since long sessions often take more server resources)?

Administrators need to closely observe the session activity on a Citrix/Microsoft RDS/VMware VDI server so as to make a fair judgment of current server capacity and make sizing recommendations for the future. To facilitate effective session monitoring, eG Enterprise provides a comprehensive **User Session Analysis** report. Besides furnishing pre-configured details pertaining to Citrix/Microsoft RDSserver sessions and user sessions to virtual desktops in a farm, this report also leads to a page listing the longest sessions and the users with the maximum access duration both at the farm level and individual server level. This enables administrators identify sessions that have been open for a long period of time and the users who have probably kept them open, investigate the reasons for this abnormal behavior, and immediately initiate the required remedial action. Using the user session analysis report, administrators can also verify whether the server has been sized commensurate to its active and anticipated workload, and can thus perform effective capacity planning.

User Session Analysis reports are also useful for compliance to emerging standards like Sarbanes Oxley. Using these reports, an administrator can list all the users who have accessed any of the servers in the farm. Thus, any unauthorized access can be spotted and corrected.

To view the User Session Analysis report, do the following:

1. Follow the menu sequence: *REPORTS BY FUNCTION -> Citrix / VDI Reports -> User Session Analysis*.
2. Figure 10.24 will then appear. To monitor the Citrix/Microsoft RDS/VDI servers pertaining to a farm, select the **Zone** to which the servers in the farm have been added.

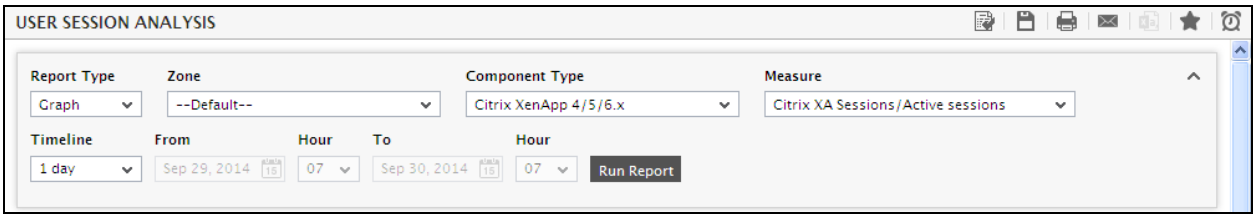


Figure 10.24: Generating a User Session Analysis Report

3. The **Component Type** list is then populated with the *Citrix MF XP*, *Citrix*, *Microsoft RDS*, *VMware vSphere VDI* options, based on the type of components present in the chosen **Zone**.
4. Next, choose a **Report Type** (**Graph** or **Data**). The default **Report Type** is **Graph**. To closely observe and clearly understand the behavior of a single performance parameter across a zone, you can plot a single measure's data alone in a **Graph** report (see Figure 10.24).
5. When the **Report Type** is **Graph**, a **Measure** list box will appear, containing the complete list of measures that you have configured for the report. From this list, pick the **Measure** for which a graph is to be generated (see

Figure 10.24).

6. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

- The default **Timeline** can be set using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Configure -> Reports -> Consolidated. For more details regarding this page, refer to Section 3.4 of this manual.
- Shorter the **Timeline** for a report, lighter would be the query that is executed on the database, and faster the report generation. Report **Timelines** that run across many weeks therefore, cause excessive strain on the database, thus slowing-down report generation. To save the eG backend from injury, eG Enterprise automatically restricts the maximum **Timeline** for which a thin client report can be generated to the lower of the following values:

- the value of the **CtxLoginTest** parameter in the **[DDD_CLEANUP]** section of the **eg_format.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory)
- the value of the **MaxTimeline** parameter in the **[MISC]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory).
- The maximum timeline for which the current user to eG Reporter is permitted to generate reports;

The **[DDD_CLEANUP]** section is where you define the interval (in days) at which the detailed diagnosis of specific tests is to be purged from the database. For the **CtxLoginTest**, the default interval is set to 32 days (i.e., just over a month), indicating that, by default, the detailed diagnosis of the **CtxLoginTest** is cleared from the database at the end of every month. Since critical thin client reports are generated based on the detailed diagnosis information, a **Timeline** that exceeds the duration set against **CtxLoginTest** would result in a report that displays invalid/no data. This duration however, is configurable. Similarly, you can also configure a **MaxTimeline** in the **[MISC]** section of the **eg_report.ini** file. By default, this parameter is set to **168** (hours), indicating that the maximum **Timeline** for a thin client report is **1 week** (i.e., 24 * 7 = 168 hours). Also, while creating user profiles using the eG administrative interface, an administrator can indicate the maximum timeline for which that user can generate reports, so as to avoid long running reports.

Now, assume that you have set the **CtxLoginTest** parameter to 21 days (i.e., 3 weeks) and the **MaxTimeline** parameter to 336 hours (i.e., 2 weeks). Also, say that user *john* with access rights to eG Reporter has been configured to generate reports for a maximum timeline of 1 week. Therefore, whenever user *john* logs into eG Reporter and attempts to generate a thin client report, eG Enterprise compares the three values, picks the lowest of the three, and sets that value as the maximum **Timeline** for thin client reports. In our example, the maximum timeline settings of user *john* (i.e., 1 week) is the lowest Therefore, the maximum value that will be available for selection from the **Fixed Timeline** list box in the thin client report page will be **1 week**.

Note that this timeline restriction does not apply to fixed timeline settings alone. If a user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification is equal to or below the lowest of the three values discussed above. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **RUN REPORT** button soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.25). The steps below discuss each of these settings and how they can be customized.

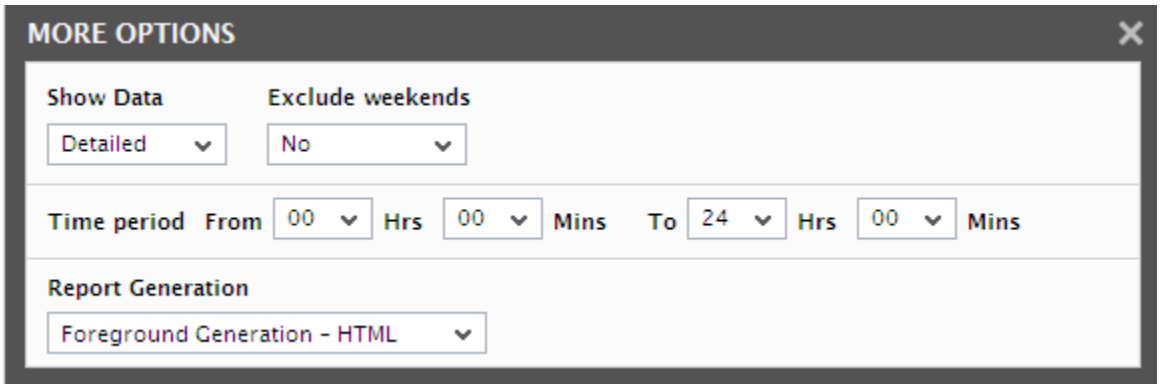


Figure 10.25: The default settings for the generating the User Session Analysis report

8. The speed with which a report is generated depends primarily on the report **Timeline**. While a **Timeline** that varies between a couple of days to a week enables the eG Enterprise system to quickly retrieve the required data, timelines that span multiple weeks/months could slow-down the data retrieval and report generation process to a considerable extent, owing to the volume of data involved. In order to ensure quick and easy access to reports, eG Enterprise provides you the option of enabling data retrieval from the **Trend** information in the database, instead of the **Detailed** test information that is used by default for report generation. The **Detailed** test information base comprises of multiple measurement records for a test - one or more each for every test execution. Whereas, the **Trend** information includes only hourly, daily, and monthly summary computations for a test performed on a continuous basis. For instance, during a period of 1 hour, a test that runs every 5 minutes inserts atleast 12 records into the **Detailed** test information base. On the other hand, the **Trend** information base would consist of only 1 record for the same 1 hour period. Fewer the number of records, query execution becomes that much more quicker, and data retrieval faster. To use the trend data for report generation, you will have to select the **Trend** option from the **Show Data** field in Figure 10.25. By default, the **Detailed** option is selected in Figure 10.25 indicating that, by default, the report data is retrieved from the detailed test information in the database. If need be, you can also ensure that all reports always use the **Detailed** test tables alone by hiding the **Show Data** field from the reporter interface. To achieve this, do the following:

   - Edit the **eg_services.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
   - In the **[MISC_ARGS]** section of the file, you have an **AvgSumTrends** flag that is set to **Yes** by default. This makes sure that the **Show Data** field appears in the reporter interface, by default.
   - If you set the **AvgSumTrends** flag to **No**, then the **Show Data** field will not appear in the reporter interface; this denies users access to the **Trend** option, and thus ensures that reports are always generated using the **Detailed** tables.

- A **Trend** report will not include the data for the current day since trend data is only computed at the end of the day.
- If the **Trend** option is chosen, the time period of the report should be greater than 1 day.
- The usage of **Detailed** test tables for generating reports, especially those that span weeks, increases the stress on the eG database, thus resulting in undue delays in report generation. In order to ensure that the database is not choked by such voluminous data requests, you can configure eG Enterprise to automatically "force" the use of the **Trend** option if the **Timeline** of a report exceeds a pre-configured duration. To specify this time boundary, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config directory**.
- In the **[MISC]** section of the file, you will find a **DetailedTime** parameter.
- Specify the duration (in days) beyond which **Detailed** reports cannot be generated, against the **DetailedTime** parameter, and save the **eg_report.ini file**.
- For instance, to make sure that **Detailed** reports are disallowed for a **Timeline** of over 2 weeks, set the **DetailedTime** parameter to 14 and save the file.
- Say, subsequently, you attempt to generate a **Detailed** report for a **Fixed Timeline** of 3 weeks (which is greater than the 14-day limit set in our example). The instant you select the 3 weeks option from the **Fixed** list box, the **Detailed** option gets automatically disabled, and the **Trend** option gets enabled. Similarly, if you specify an **Any Timeline** that runs over 14 days, then, upon clicking the **RUN REPORT BUTTON** to generate the report, a message box appears (see Figure 5.8) informing you that only the **Trend** option is permitted.
- To proceed with the **Trend** report generation, click the **OK** button in the message box. To terminate **Trend** report generation, click the **CANCEL** button.

9. Next, specify the start time and end time for report generation against the **Time period** field.

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

10. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

You can configure the days of the week that need to be considered as a 'weekend' using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

12. Finally, click the **Run Report** button.
13. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 10.26, which will reveal the following:
    - A distribution pie chart reveals the number of components in different distribution ranges (see Figure 10.26). The distribution ranges are obtained based on the first of the configured functions on the chosen **Measure**. For instance, assume that *Active sessions* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of *Active sessions* in the session report. Typically, both these configured values will appear only in a **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Active sessions* - alone is calculated for the chosen zone. A quick glance at the pie chart indicates whether or not session load is uniformly distributed across the various components in the zone. Click on a particular slice in the pie chart to view the list of components that fall within the value range represented by that slice (see Figure 10.27). Against every component name, the actual values for

each of the configured functions (both *Avg* and *Max*, in our example) will be displayed. A zone-level **Summary** of the chosen **Measure**, and the maximum and average session durations at the zone-level will also be displayed.

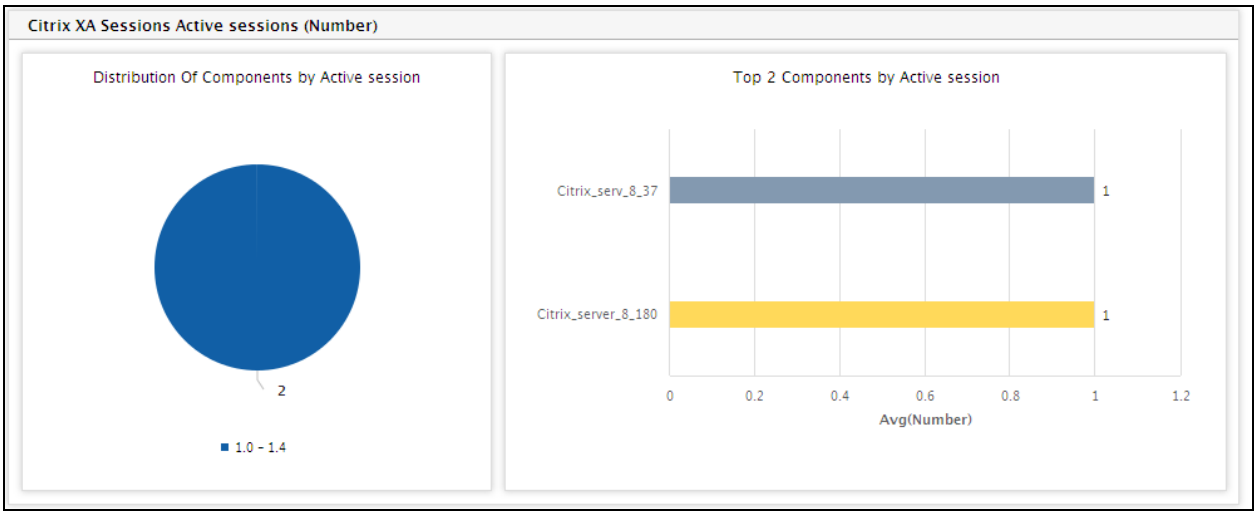


Figure 10.26: A graphical User Session Analysis report

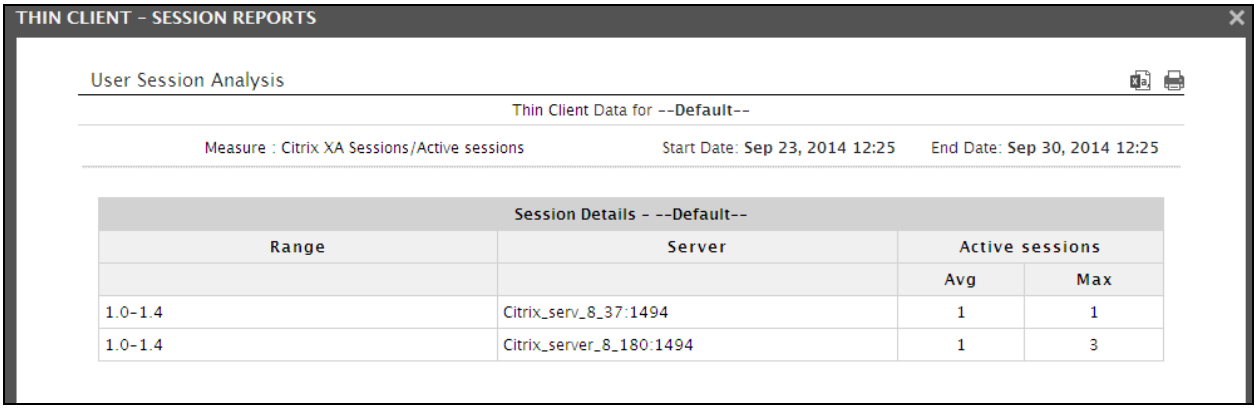


Figure 10.27: A list of components with *Active_sessions* in a given range

➢ By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Change the value of the **chartTypeForDist** parameter in the **[CITRIX SESSION REPORT]** section of this file from the default **Pie**, to **Bar**.
- Save the **eg_report.ini** file.

Note

➢ By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **nofRangeForDist** parameter in the **[CITRIX SESSION REPORT]** section of this file. By default, this parameter will hold the value 10.
- Save the **eg_report.ini** file.

➢ Adjacent to the pie chart, you will find a bar chart that indicates the components that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Active sessions* measure, this bar chart reveals the top components in terms of current session activity. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**. Clicking on the bar corresponding to a server name results in a **Server Report** (see Figure 10.28) that enables you to focus on the performance of that server.

Server Report for Citrix_serv_8_37:1494: Citrix XenApp 4/5/6.x

MEASURES (UNIT)	AVG	MAX	MIN	
CPU util (%)	15.1822	96.1399	0.696	
Free memory (MB)	624.2442	739.3086	305.8594	
Scan rate (Pages/sec)	51.3331	4135.1679	0	
Disk read time (Secs)	0.0039	0.0462	0	
Disk write time (Secs)	0.0046	0.0817	0	
Network availability (%)	100	100	100	
Network delay avg (Secs)	0.0022	0.0124	0.0011	
Active sessions (Number)	1	1	0	
Disconnected sessions (Number)	1	1	0	
TCP retransmit ratio (%)	-	-	-	
Num processes running (Number)	2	3	1	
Incoming traffic (Mbps)	0.014	0.1256	0	
Outgoing traffic (Mbps)	0.02	0.1079	0	
Ctx Cpu util (%)	0.0079	0.8333	0	
Memory util (%)	0.6098	3.3992	0	
Current connections (Number)	7	24	0	
Used space (MB)	16548.1029	32862.582	1039.5313	

Figure 10.28: The server report that appears upon clicking on a bar chart

➢ The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **NoOfServersforChart** parameter in the **[CITRIX SESSION REPORT]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear.
- Finally, save the **eg_report.ini** file.

Note

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the **SESSION** report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[CITRIX SESSION REPORT]** section of the file defines the 20 default colors of the distribution and bar charts:

```
[CITRIX SESSION REPORT]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

Note

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

14. A **Data** report does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report. To generate a **Data** report, select **Data** as the **Report Type** (see Figure 10.24).
15. Then, like in the case of a **Graph** report, provide a **Time period**, **Timeline**, indicate whether/not to **Exclude weekends**, and also indicate whether **Detailed** data or **Trend** data is to be used for report generation (see Figure 10.24). Finally, click on the **Run Report** button.
16. If the **Report Type** is **Data**, **Component Type** is *Citrix MF XP, Citrix XenApp Citrix XenApp 4/5/6.x, Microsoft RDS, VMware vSphere VDI*, and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, upon clicking the **Run Report** button, you will find a report providing session information in two sections. The first section displays the following:

- the total number of sessions on all Citrix/Terminal/VDI servers (as the case may be) in the farm (see Figure 10.29)
- the average and maximum duration of the sessions on the Citrix/Terminal/VDI servers (as the case may be) in the farm (see Figure 10.29)

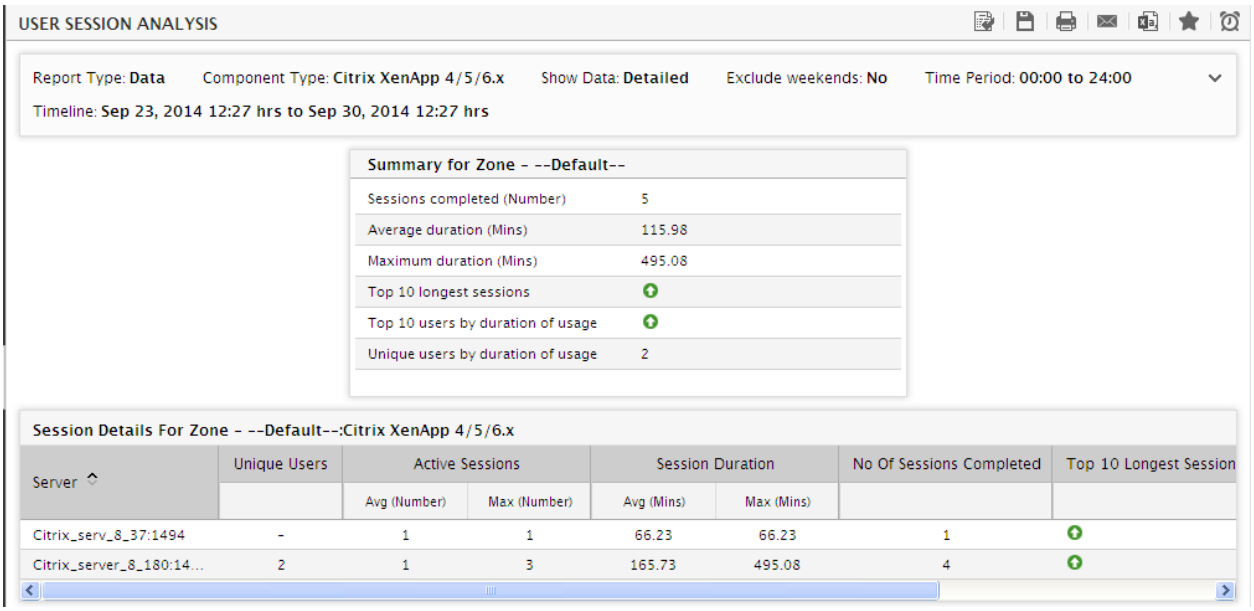

USER SESSION ANALYSIS
Report Type: Data
Component Type: Citrix XenApp 4/5/6.x
Show Data: Detailed
Exclude weekends: No
Time Period: 00:00 to 24:00
Timeline: Sep 23, 2014 12:27 hrs to Sep 30, 2014 12:27 hrs
Summary for Zone - --Default--
Sessions completed (Number) 5
Average duration (Mins) 115.98
Maximum duration (Mins) 495.08
Top 10 longest sessions
Top 10 users by duration of usage
Unique users by duration of usage 2
Session Details For Zone - --Default--:Citrix XenApp 4/5/6.x
Server
Unique Users
Active Sessions
Avg (Number)
Max (Number)
Session Duration
Avg (Mins)
Max (Mins)
No Of Sessions Completed
Top 10 Longest Session
Citrix_serv_8_37:1494 - 1 1 66.23 66.23 1
Citrix_server_8_180:14... 2 1 3 165.73 495.08 4

Figure 10.29: The Session report for Citrix XenApp 4/5/6.x servers in a farm

17. Links to the top sessions (see Figure 10.29) and users (see Figure 10.29) in the farm will also be available in this section. Clicking on the Up-arrow hyperlink corresponding to the **Top <N> longest sessions** entry will reveal Figure 10.30, which will provide the details of the top sessions in the farm. The details include the servers that were accessed, the users who accessed them, the time of login, and the duration of access. Click on the **BACK** button in Figure 10.30 to return to the previous page. Similarly, clicking on the Up-arrow hyperlink corresponding to the **Top <N> users** entry in the summary section, will lead you to Figure 10.31 that reveals the top users in the farm in terms of duration of access.

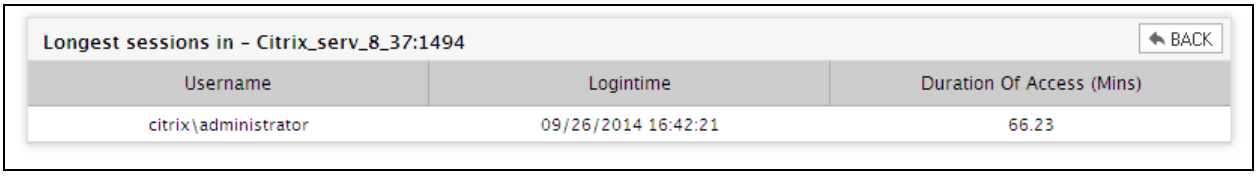


Figure 10.30: The longest sessions in the farm

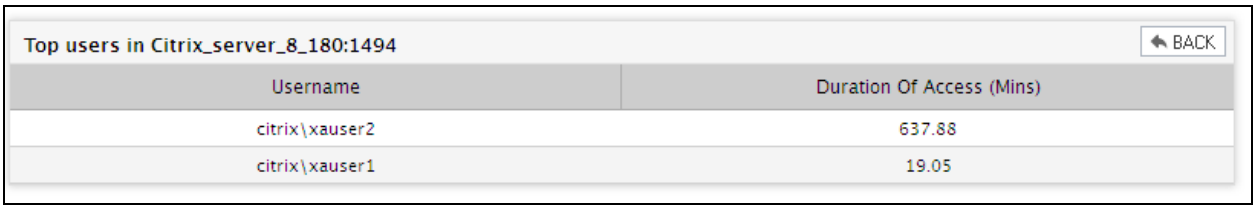


Figure 10.31: The top users of the farm

18. Besides, the total number of 'distinct' users to the zone during the given **Timeline**, is also displayed in the first

section of Figure 10.29. Clicking on the number of **Unique users** invokes a distribution bar chart that depicts the number of unique users who logged into the farm every day during the specified **Timeline** (see Figure 10.32). This chart enables you to identify the exact date on which there was excessive user activity on the zone. To know which users have contributed to this abnormal user activity, click on the bar that corresponds to the 'busy' day. A list of distinct users to the Citrix/Microsoft RDS/VDI servers in the zone on that date will then appear (see Figure 10.33).

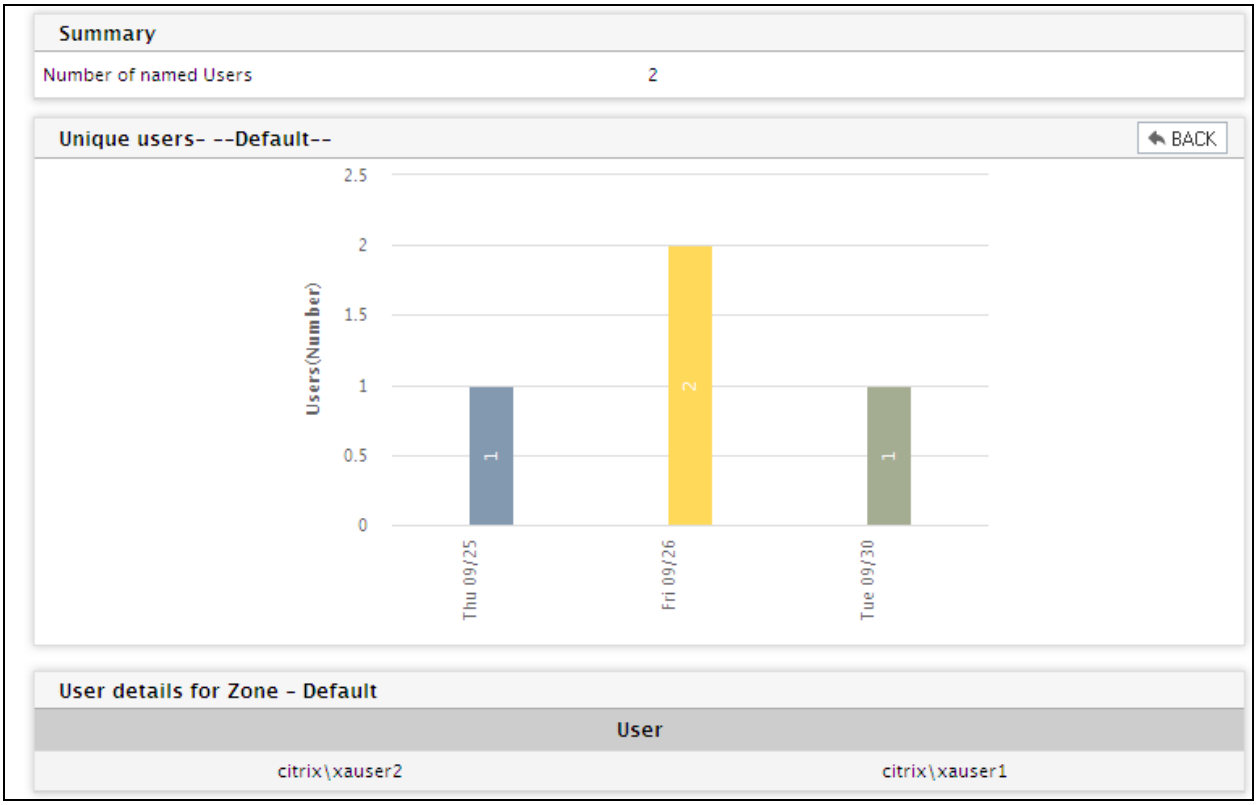


Figure 10.32: A day-wise distribution chart for the user activity on the zone

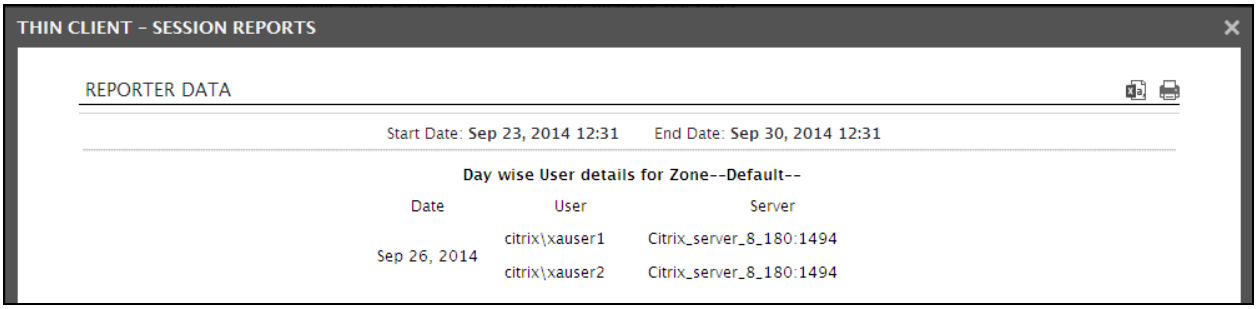
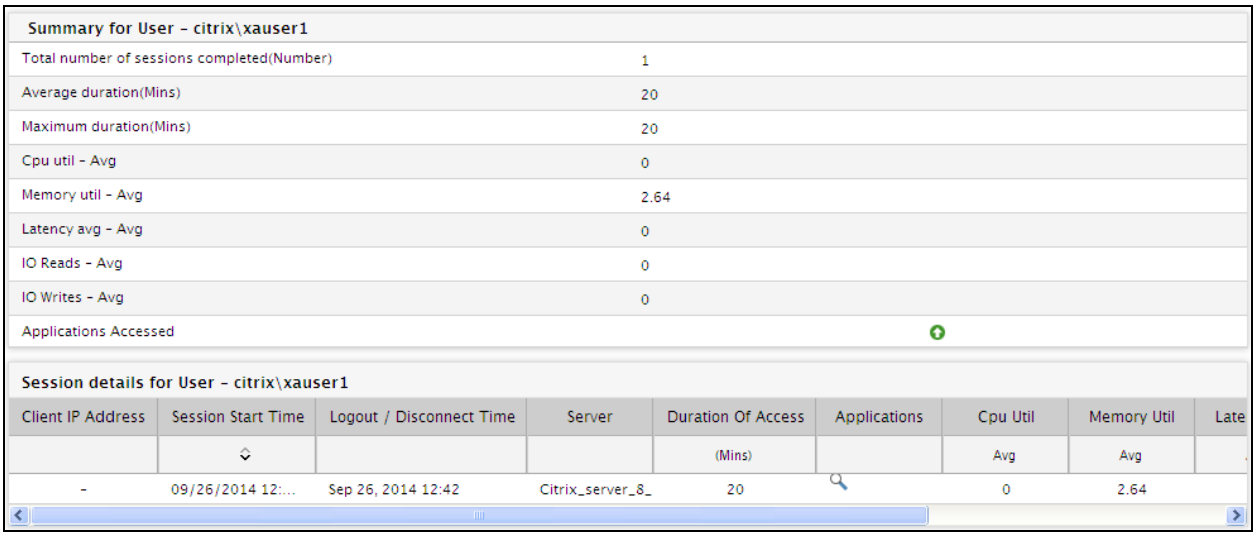


Figure 10.33: The list of users to the farm on a particular date

19. Below the distribution bar graph of Figure 10.32 is a **User details** table that lists the 'distinct' users who logged into one/more of the servers in the farm during the specified **Timeline**. If the list consists of users who have successfully completed one/more sessions on the farm, then such user names alone will be hyperlinked. Clicking on the hyperlink will lead you to the **User Report** of that user for the same **Timeline** (see Figure 10.34).



Summary for User - citrix\xauser1

Total number of sessions completed(Number)	1
Average duration(Mins)	20
Maximum duration(Mins)	20
Cpu util - Avg	0
Memory util - Avg	2.64
Latency avg - Avg	0
IO Reads - Avg	0
IO Writes - Avg	0
Applications Accessed	

Session details for User - citrix\xauser1

Client IP Address	Session Start Time	Logout / Disconnect Time	Server	Duration Of Access (Mins)	Applications	Cpu Util Avg	Memory Util Avg	Late
-	09/26/2014 12:...	Sep 26, 2014 12:42	Citrix_server_8_	20		0	2.64	

Figure 10.34: User report of the user with completed sessions

20. The second section of the session report consists of a table that provides user-configured session information pertaining to every Citrix/Microsoft RDS/VDI server in the chosen farm (see Figure 10.34). Links to the top 'n' sessions (see Figure 10.35) and users (see Figure 10.36) on every Citrix/Terminal/VDI server in the farm will also be available.

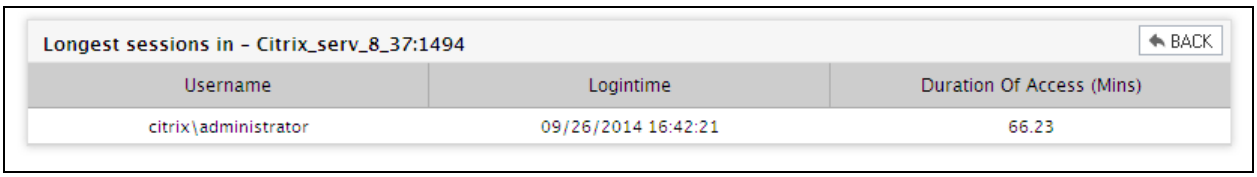
You can configure the **'N'** in the **Top <N>** sessions and users, by editing the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory). In the **[CITRIX SESSION REPORT]** section of this file, set the **Top** parameter to a particular number as indicated below:

```
[CITRIX SESSION REPORT]
Top=10
```

In the example above, **Top** has been set to **10**. This ensures that all **'Top-N'** hyperlinks in the session report page now read as **"Top 10"**. Moreover, clicking on the **Top-10** hyperlink will list the top 10 sessions that have remained active for the longest duration, or the top 10 users with the maximum access duration (as the case may be).

---

21. To zoom into the details pertaining to a particular user, click on the name of the user in the **Top users** list of Figure 10.36. This invokes the **User Report** of that user.



Longest sessions in - Citrix_serv_8_37:1494 BACK

Username	Logintime	Duration Of Access (Mins)
citrix\administrator	09/26/2014 16:42:21	66.23

Figure 10.35: The longest sessions on a particular server in the farm

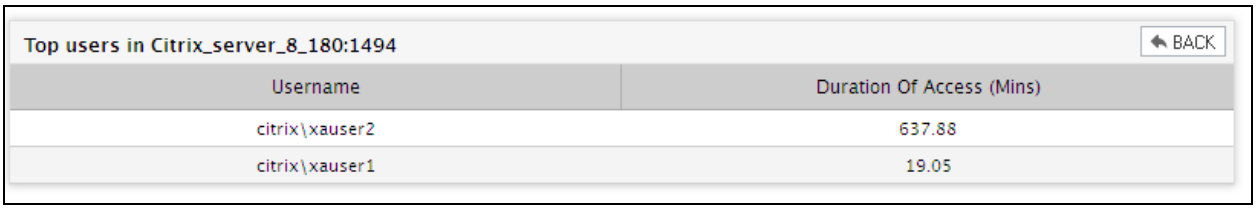


Figure 10.36: The top users on a particular server in the farm

22. In the second section again, the total number of 'distinct' users to every server in the farm will be displayed. Clicking on the number of **Unique users** invokes a distribution bar chart that depicts the number of unique users who logged into the corresponding server every day during the specified **Timeline** (see Figure 10.37). This chart enables you to identify the exact date on which there was excessive user activity on the server. To know which users have contributed to this abnormal user activity, click on the bar that corresponds to the 'busy' day. A list of distinct users to the Citrix/Terminal/VDI server on that date will then appear (see Figure 10.38).

Figure 10.37: The day-wise distribution of users to a particular server

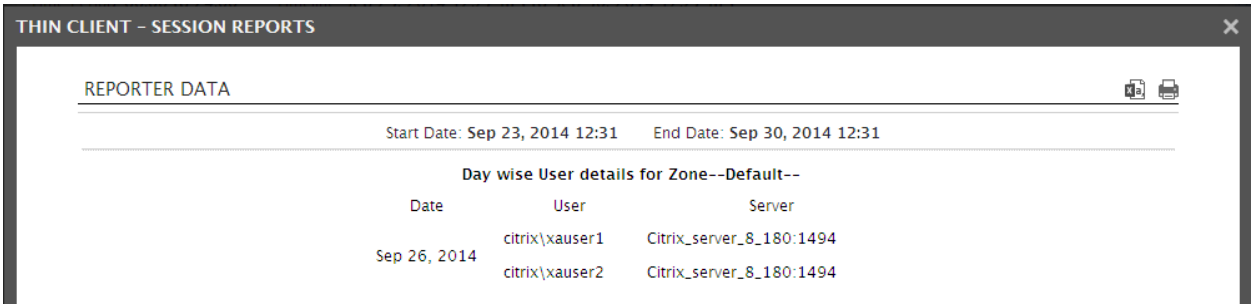
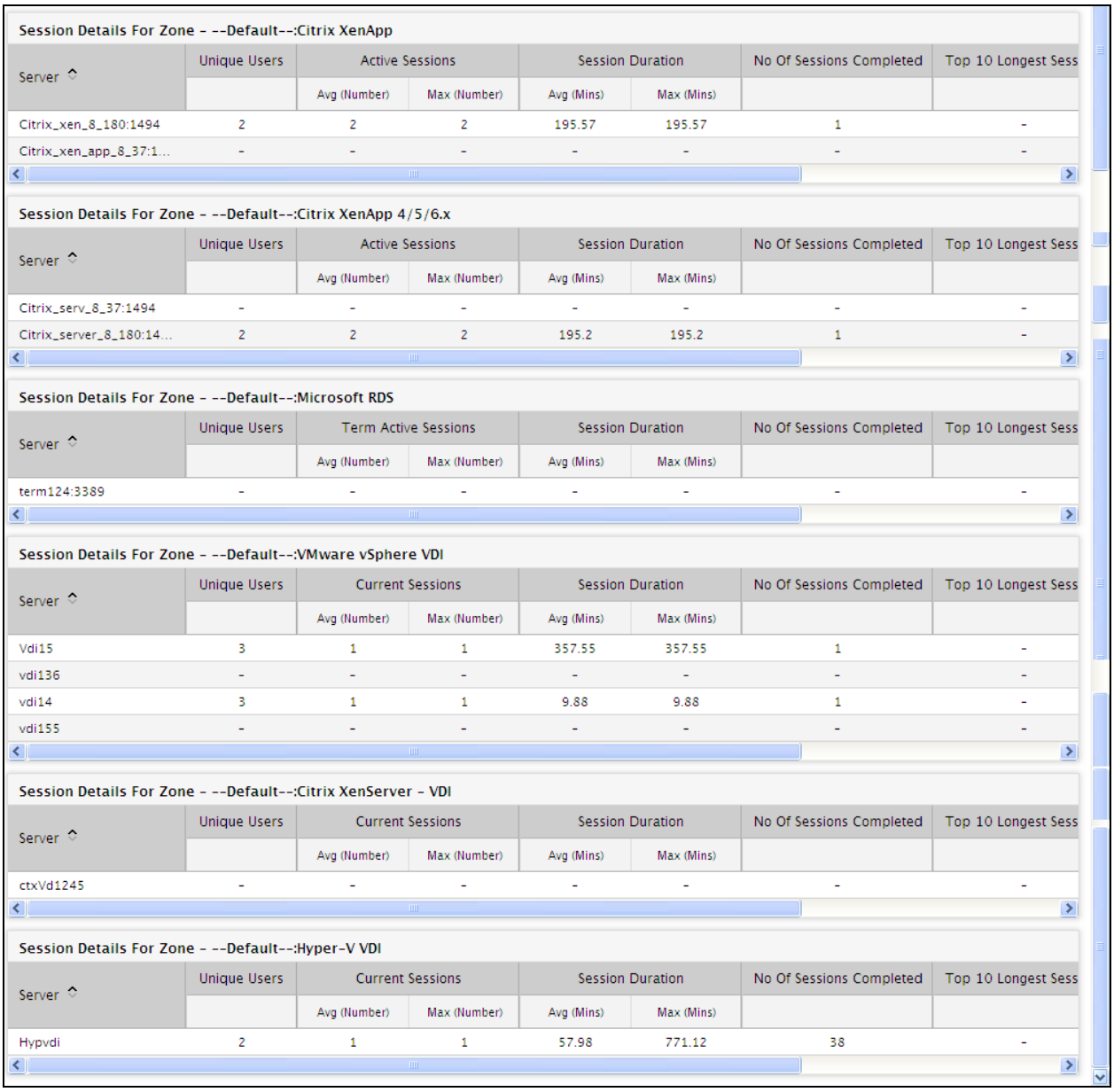


Figure 10.38: The list of users who accessed a particular server on a specific date

23. To know who accessed the server during the specified **Timeline**, take a look at the **User details** table below the distribution bar chart of Figure 10.37. The users with completed sessions to their credit are highlighted by means of a hyperlink, clicking on which leads you to the **User Report** of that user.

24. In case of a **Data** report, the **Component Type** list is populated with an additional *All Types* option. A **Data** report for *All Types* in a chosen zone will not consist of a farm-level summary; instead, you will have sections providing the session details pertaining to every server under each component-type of the chosen zone (see Figure 10.39).



Session Details For Zone - --Default--:Citrix XenApp

Server	Unique Users	Active Sessions		Session Duration		No Of Sessions Completed	Top 10 Longest Sess
		Avg (Number)	Max (Number)	Avg (Mins)	Max (Mins)		
Citrix_xen_8_180:1494	2	2	2	195.57	195.57	1	-
Citrix_xen_app_8_37:1...	-	-	-	-	-	-	-

Session Details For Zone - --Default--:Citrix XenApp 4/5/6.x

Server	Unique Users	Active Sessions		Session Duration		No Of Sessions Completed	Top 10 Longest Sess
		Avg (Number)	Max (Number)	Avg (Mins)	Max (Mins)		
Citrix_serv_8_37:1494	-	-	-	-	-	-	-
Citrix_server_8_180:14...	2	2	2	195.2	195.2	1	-

Session Details For Zone - --Default--:Microsoft RDS

Server	Unique Users	Term Active Sessions		Session Duration		No Of Sessions Completed	Top 10 Longest Sess
		Avg (Number)	Max (Number)	Avg (Mins)	Max (Mins)		
term124:3389	-	-	-	-	-	-	-

Session Details For Zone - --Default--:VMware vSphere VDI

Server	Unique Users	Current Sessions		Session Duration		No Of Sessions Completed	Top 10 Longest Sess
		Avg (Number)	Max (Number)	Avg (Mins)	Max (Mins)		
Vdi15	3	1	1	357.55	357.55	1	-
vdi136	-	-	-	-	-	-	-
vdi14	3	1	1	9.88	9.88	1	-
vdi155	-	-	-	-	-	-	-

Session Details For Zone - --Default--:Citrix XenServer - VDI

Server	Unique Users	Current Sessions		Session Duration		No Of Sessions Completed	Top 10 Longest Sess
		Avg (Number)	Max (Number)	Avg (Mins)	Max (Mins)		
ctxVd1245	-	-	-	-	-	-	-

Session Details For Zone - --Default--:Hyper-V VDI

Server	Unique Users	Current Sessions		Session Duration		No Of Sessions Completed	Top 10 Longest Sess
		Avg (Number)	Max (Number)	Avg (Mins)	Max (Mins)		
Hypvdi	2	1	1	57.98	771.12	38	-

Figure 10.39: Session details for every server in every component-type in the zone

Here again, you will find links to the top 'n' sessions, users, and the **Unique users** to every component of a type.

25. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

You can configure the per-server information that needs to appear in the session report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. For example, to ensure that the session report displays the average and maximum number of sessions that are currently active on each of the Citrix servers in a farm, and the average and maximum number of sessions that are inactive, do the following:

- In the **[CITRIX SESSION REPORT]** section of this file, specify the following:

```
[CITRIX SESSION REPORT]
Citrix_MF_XP:CtxSessionTest:Active_sessions#Active sessions=Avg,Max
Citrix_MF_XP:CtxSessionTest:Inactive_sessions#Inactive sessions=Avg,Max
```

Here, Citrix_MF_XP is the *InternalComponentType*, CtxSessionTest is the *InternalTestName* that reports the Active sessions and Inactive sessions. *Avg* and *Max* are the functions that need to be executed on the values of the configured measures (i.e., Active_sessions and Inactive_sessions) in order to compute the average and maximum number of sessions. Note that if no functions are configured, then the report will, by default, display the average (*Avg)* values of the measure. *Active sessions* and *Inactive sessions* are the display names of the measures. Therefore, the specification should be of the format: *<InternalComponent-type>:<InternalTest>:<InternalMeasure>#<Displayname>=<Comma-separated list of functions>*. If a *Displayname* is not provided, then the actual measure name will automatically become the *Displayname*.

To know the internal component type, test, and measure names, use the procedure discussed in Page 212 of this manual.

- Finally, save the **eg_report.ini** file.

10.5 Application Activity Report

In order to make sure that a Citrix/Terminal server performs at its peak at all occasions, it is essential to keep tabs on the number of applications executing on the server and their combined and individual resource usage. If the most popular applications in a farm can be identified, administrators can consider alternative load balancing strategies to ensure that the most popular or most resource intensive applications are hosted on different servers.

The **Application Activity Report** provided by eG Enterprise facilitates a comprehensive review of the usage of applications hosted on a Citrix/Microsoft RDS server farm. By allowing administrators to configure the application-specific metrics that they want displayed in the report, eG Enterprise ensures that useful and workable information is at the disposal of the administrators at all times. As the administrators get to see what they want to see, they will be able to take more effective performance decisions.

In order to generate the application report, do the following:

1. Select the **Application Activity** option from the **Citrix / VDI Reports** node of the **REPORTS BY FUNCTION** tree.
2. Figure 10.40 will then appear. To monitor the servers in a farm, select the **Zone** to which the servers in the farm have been added.

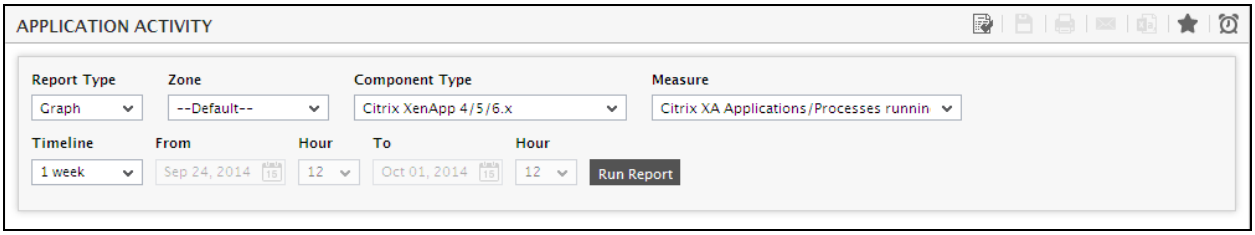


Figure 10.40: Thin client application report

3. Next, choose a **Report Type** (**Graph** or **Data**). The default **Report Type** is **Graph**. To closely observe and clearly understand the behavior of a single performance parameter across a zone, you can plot a single measure's data alone in a **Graph** report (see Figure 10.40).
4. If the **Report Type** is **Graph**, a **Measure** list box will appear, containing the complete list of measures that you have configured for the report (see Figure 10.40). From this list, pick the **Measure** for which a graph is to be generated.
5. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

- The default **Timeline** can be set using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Configure -> Reports -> Consolidated. For more details regarding this page, refer to Section 3.4 of this manual.
- Shorter the **Timeline** for a report, lighter would be the query that is executed on the database, and faster the report generation. Report **Timelines** that run across many weeks therefore, cause excessive strain on the database, thus slowing-down report generation. To save the eG backend from injury, eG Enterprise automatically restricts the maximum **Timeline** for which a thin client report can be generated to the lower of the following values:

- the value of the **CtxLoginTest** parameter in the **[DDD_CLEANUP]** section of the **eg_format.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory)
- the value of the **MaxTimeline** parameter in the **[MISC]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory).
- The maximum timeline for which the current user to eG Reporter is permitted to generate reports;

The **[DDD_CLEANUP]** section is where you define the interval (in days) at which the detailed diagnosis of specific tests is to be purged from the database. For the **CtxLoginTest**, the default interval is set to 32 days (i.e., just over a month), indicating that, by default, the detailed diagnosis of the **CtxLoginTest** is cleared from the database at the end of every month. Since critical thin client reports are generated based on the detailed diagnosis information, a **Timeline** that exceeds the duration set against **CtxLoginTest** would result in a report that displays invalid/no data. This duration however, is configurable. Similarly, you can also configure a **MaxTimeline** in the **[MISC]** section of the **eg_report.ini** file. By default, this parameter is set to **168** (hours), indicating that the maximum **Timeline** for a thin client report is **1 week** (i.e., 24 * 7 = 168 hours). Also, while creating user profiles using the eG administrative interface, an administrator can indicate the maximum timeline for which that user can generate reports, so as to avoid long running reports.

Now, assume that you have set the **CtxLoginTest** parameter to 21 days (i.e., 3 weeks) and the **MaxTimeline** parameter to 336 hours (i.e., 2 weeks). Also, say that user *john* with access rights to eG Reporter has been configured to generate reports for a maximum timeline of 1 week. Therefore, whenever user *john* logs into eG Reporter and attempts to generate a thin client report, eG Enterprise compares the three values, picks the lowest of the three, and sets that value as the maximum **Timeline** for thin client reports. In our example, the maximum timeline settings of user *john* (i.e., 1 week) is the lowest Therefore, the maximum value that will be available for selection from the **Fixed Timeline** list box in the thin client report page will be **1 week**.

Note that this timeline restriction does not apply to fixed timeline settings alone. If a user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification is equal to or below the lowest of the three values discussed above. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **RUN REPORT** button soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.41). The steps below discuss each of these settings and how they can be customized.

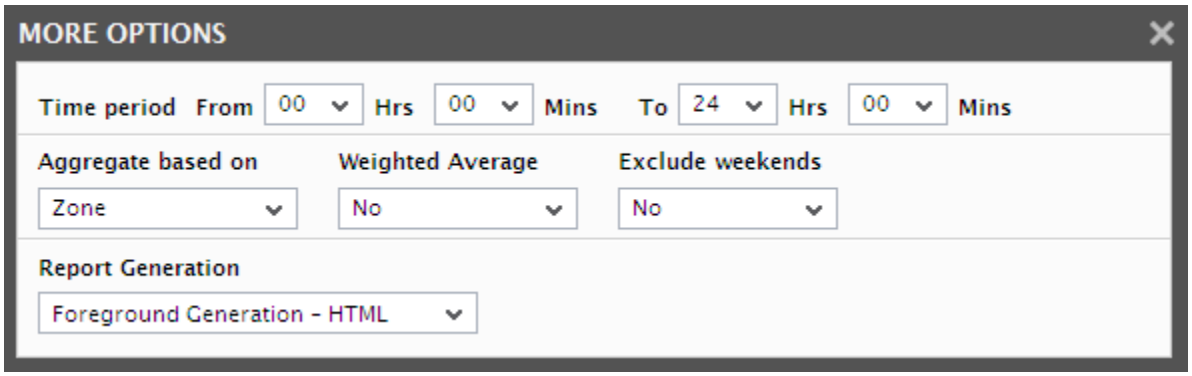


Figure 10.41: The default settings for generating an Application Activity report

7. Specify the start time and end time for report generation against the **Time period** field (See Figure 10.41).

Note

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

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8. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

Note

You can configure the days of the week that need to be considered as a 'weekend' using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

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9. Using the **Weighted Average** flag, you can indicate how the *Avg* value is to be computed for a chosen measure for the purpose of this report. The status of the **Weighted Average** flag is relevant only if the **Test** chosen is a descriptor-based test, and the descriptors are dynamic in nature. For instance, the *Citrix XA Applications* test in our example auto-discovers the applications that are currently running on a Citrix XenApp farm. For each

application hosted into the Citrix XenApp, the test reports a variety of statistics. Unlike descriptors such as disk partitions or processors that rarely change, the applications are dynamic descriptors, which may change often; in other words, an application that is currently in use, may not be used at all by the user during the next measurement period. The *Citrix XA Applications* test will neither report metrics for the inactive descriptors nor display it in the eG monitoring console. This is why, applications in the *Citrix XA Applications* test are considered 'dynamic descriptors'.

10. By default, this report compares the *Avg* value of the chosen measure across all selected descriptors. Since the **Weighted Average** flag is set to **No** by default, this *Avg* is computed as the ratio of the sum total of the measure values reported by a descriptor during the given timeline and the total number of times the test is executed during the same timeline. In case of dynamic descriptors however, the *Avg* values so computed may not reveal the 'true picture of performance'. This is because, the test may not discover or report metrics for dynamic descriptors throughout a given timeline. For example, take the case of the *Citrix XA Applications* test. Say, two applications - namely, 'A' and 'B' are currently published in the Citrix XenApp server. During its first measurement period; the processes running for each application is registered as 2 and 8 respectively. Assume that the second time the *Citrix XA Applications* test ran, it captured 5 as the number of processes running for application 'A'. Application 'B' however was inactive during the second measurement period, and hence, was not discovered at all. If the **Weighted Average** flag is set to **No** by default, then, this report will plot the Avg value of 4 (3+5=8/2=4) for application 'A' and 4 (8/2=4) again for application 'B'. If you notice, unlike application 'A', where 8 processes were running over a period of time, in case of application 'B', 8 processes were running at one shot! Logically therefore, application 'B' has to be ranked above application 'A' in terms of the number of processes that were running. However, since the default Avg value computation does not clearly bring out this difference, both application 'A' and 'B' are treated at par in this report! This is why, in case of dynamic descriptors, you may want to set the **Weighted Average** flag to **Yes**. In this case, the eG Enterprise system expresses *Avg* as the ratio of the sum total of the measure values reported by a descriptor during a given timeline and the 'total number of times that descriptor was active' during the same timeline. This implies that if the **Weighted Average** flag is set to **Yes** in the example above, the Avg value for application 'A' will continue to be 4 (3+5=8/2=4), but the same for application 'B' will be 8 (8/1=8). In this report therefore, application 'B' will be placed above application 'A', thereby accurately pointing you to the top application with the highest number of currently running processes.

11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

12. Finally, click the **Run Report** button to generate the report.
13. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 10.42 revealing the following:
    - A distribution pie chart reveals the number of components in different distribution ranges (see Figure 10.42). The distribution ranges are obtained based on the first of the configured functions for the chosen **Measure**. For instance, assume that *CPU usage* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of *CPU usage* in the application report. Typically, both these configured values will appear only in a **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *CPU usage* - alone is calculated for the chosen zone. A quick glance at the pie chart indicates where CPU has been excessively spent. Click on a particular slice in the pie chart to view the list of applications that fall within the value range represented by that slice (see Figure 10.43). Against every application name, the actual values for each of the configured functions (both *Avg* and *Max*, in our example) will be displayed.

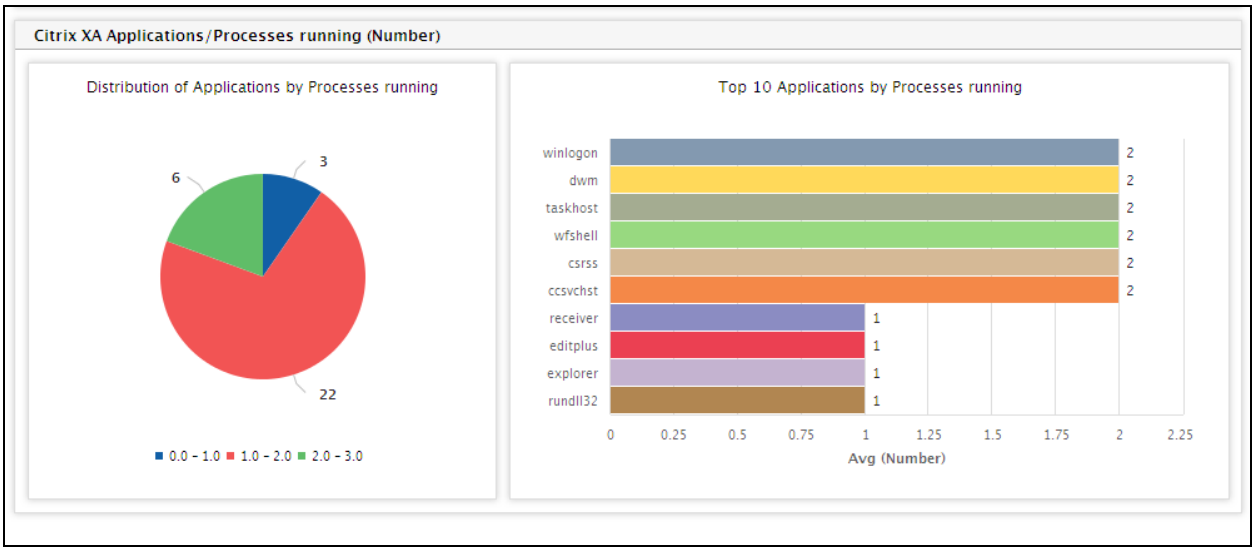
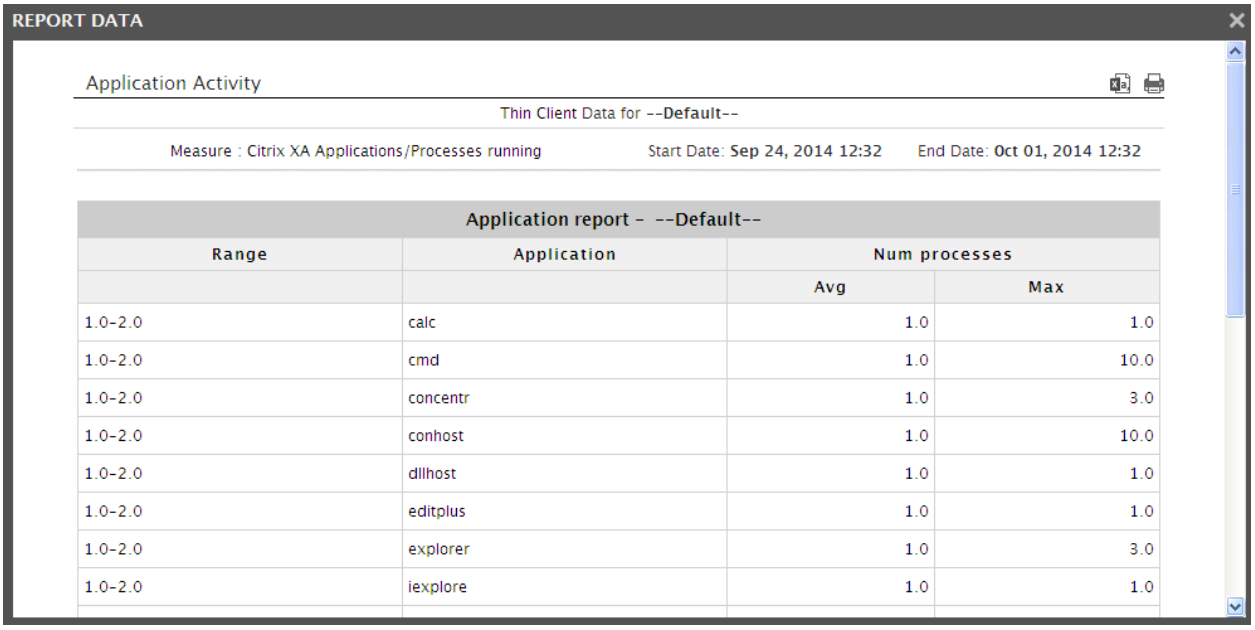


Figure 10.42: A graphical Thin client Application Activity report


REPORT DATA
Application Activity
Thin Client Data for --Default--
Measure : Citrix XA Applications/Processes running
Start Date: Sep 24, 2014 12:32
End Date: Oct 01, 2014 12:32

Application report - --Default--

Range	Application	Num processes	
		Avg	Max
1.0-2.0	calc	1.0	1.0
1.0-2.0	cmd	1.0	10.0
1.0-2.0	concentr	1.0	3.0
1.0-2.0	conhost	1.0	10.0
1.0-2.0	dllhost	1.0	1.0
1.0-2.0	editplus	1.0	1.0
1.0-2.0	explorer	1.0	3.0
1.0-2.0	iexplore	1.0	1.0

Figure 10.43: A list of applications with *Processes running* in a given range

---

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Change the value of the **chartTypeForDist** parameter in the **[APPLICATION_REPORT]** section of this file from the default **Pie**, to **Bar**.
  - Save the **eg_report.ini** file.

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Specify a number of your choice against the **nofRangeForDist** parameter in the **[APPLICATION_REPORT]** section of this file. By default, this parameter will hold the value 10.
  - Save the **eg_report.ini** file.

- Alongside the pie chart, you will find a bar chart that indicates the applications that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Processes running* measure, this bar chart reveals the top processes-consuming applications in the entire zone. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

- The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Specify a number of your choice against the **NoOfServersforChart** parameter in the **[APPLICATION_REPORT]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear.
  - Finally, save the **eg_report.ini** file.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the **APPLICATION** report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[APPLICATION_REPORT]** section of this file defines the 20 default colors of the distribution and bar charts of an **APPLICATION** report, in the following format:

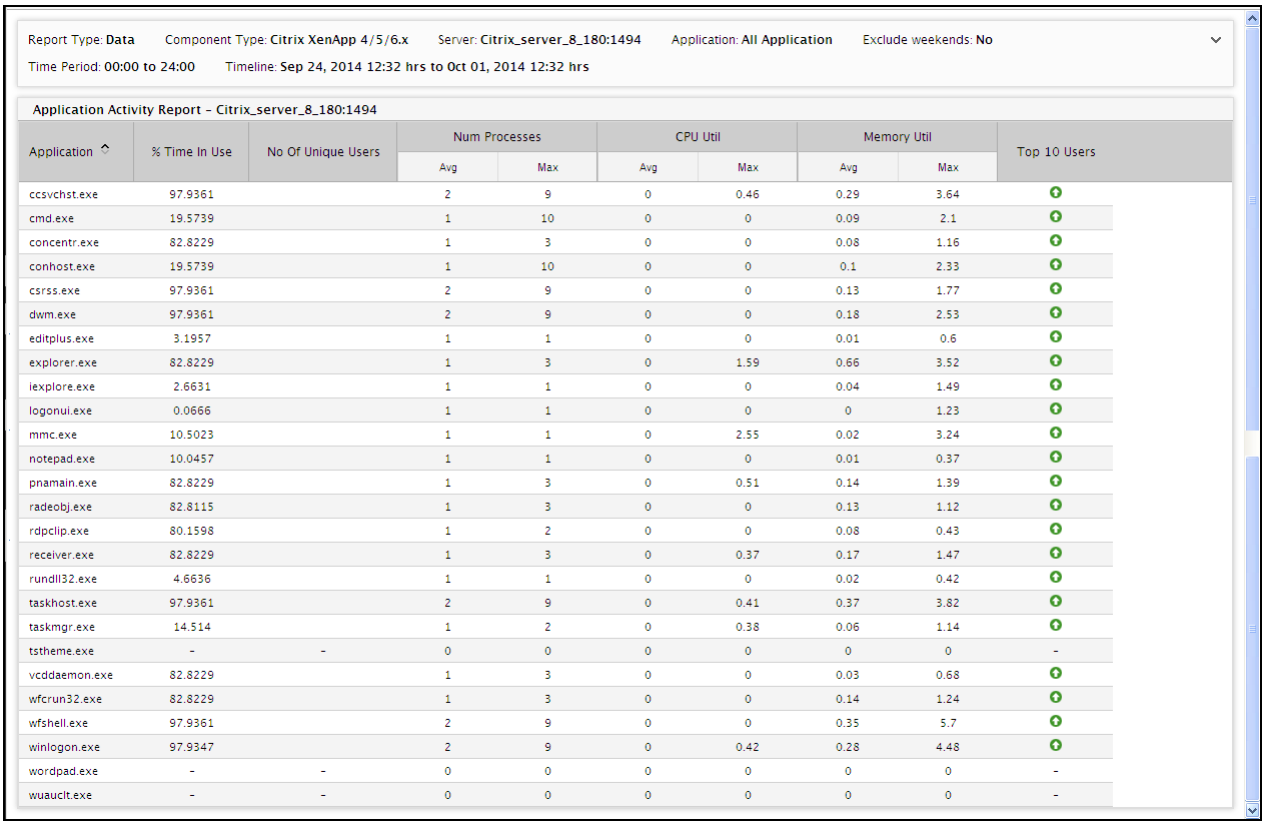
```
[APPLICATION_REPORT]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You can override the default color settings of the distribution chart by modifying the color-codes specified against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

14. A **Data** report, on the other hand, does not graphically represent the measure data. Instead, the configured details are presented in a tabular format in the report (see Figure 10.44).
15. If you choose **Data** as the **Report Type**, then you will have to select the server for which the report is to be generated from the **Server** list.
16. Next, choose a specific **Application** to be monitored, or select the **All Applications** option.
17. Then, like in the case of a **Graph** report, provide a **Time period**, **Timeline**, and indicate whether/not to **Exclude weekends**. Also, pick the **Foreground Generation - HTML** option from the **Report Generation** list. Finally, click on the **Run Report** button.
18. In case of a **Data** report, a table providing the critical performance statistics (see Figure 10.44) for the chosen server will appear. By default, the following metrics will be displayed:
    - The *Avg* number of instances of an application executing on the chosen server
    - The *Avg* CPU utilization of every application
    - The *Avg* memory utilization of every application

    While these default metrics cannot be changed, you can, however, configure functions other than *Avg* to be executed on the values reported by these metrics. Similarly, additional metrics can also be configured for display in the report.

    Besides the default and configured measure information, the **Data** report displays the percentage of time for which the chosen application(s) was in use, and the number of distinct (unique) users who were accessing the application(s) during the specified timeline. This information clearly indicates the least and the most used applications on the server.



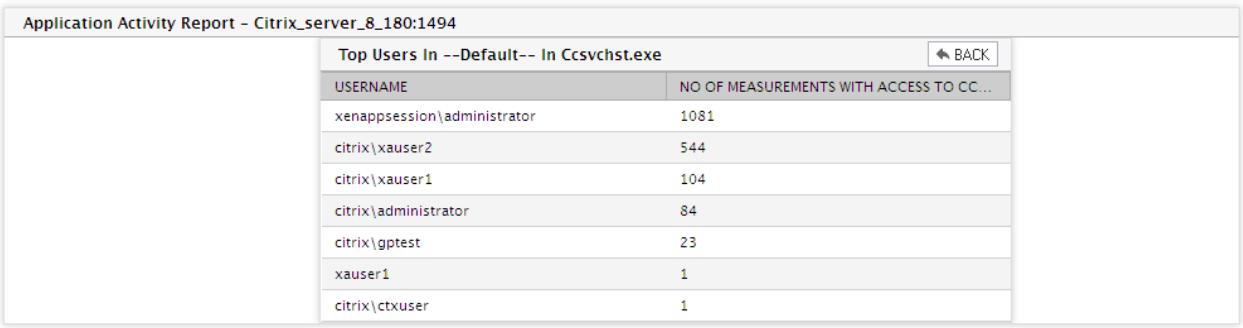
Report Type: Data Component Type: Citrix XenApp 4/5/6.x Server: Citrix_server_8_180:1494 Application: All Application Exclude weekends: No
Time Period: 00:00 to 24:00 Timeline: Sep 24, 2014 12:32 hrs to Oct 01, 2014 12:32 hrs

Application Activity Report - Citrix_server_8_180:1494

Application	% Time In Use	No Of Unique Users	Num Processes		CPU Util		Memory Util		Top 10 Users
			Avg	Max	Avg	Max	Avg	Max	
ccsvchst.exe	97.9361		2	9	0	0.46	0.29	3.64	
cmd.exe	19.5739		1	10	0	0	0.09	2.1	
concentr.exe	82.8229		1	3	0	0	0.08	1.16	
conhost.exe	19.5739		1	10	0	0	0.1	2.33	
csrss.exe	97.9361		2	9	0	0	0.13	1.77	
dwm.exe	97.9361		2	9	0	0	0.18	2.53	
editplus.exe	3.1957		1	1	0	0	0.01	0.6	
explorer.exe	82.8229		1	3	0	1.59	0.66	3.52	
iexplore.exe	2.6631		1	1	0	0	0.04	1.49	
logonui.exe	0.0666		1	1	0	0	0	1.23	
mmc.exe	10.5023		1	1	0	2.55	0.02	3.24	
notepad.exe	10.0457		1	1	0	0	0.01	0.37	
pnamain.exe	82.8229		1	3	0	0.51	0.14	1.39	
radeobj.exe	82.8115		1	3	0	0	0.13	1.12	
rdpclip.exe	80.1598		1	2	0	0	0.08	0.43	
receiver.exe	82.8229		1	3	0	0.37	0.17	1.47	
rundll32.exe	4.6636		1	1	0	0	0.02	0.42	
taskhost.exe	97.9361		2	9	0	0.41	0.37	3.82	
taskmgr.exe	14.514		1	2	0	0.38	0.06	1.14	
tstheme.exe	-	-	0	0	0	0	0	0	-
vcddaemon.exe	82.8229		1	3	0	0	0.03	0.68	
wfcrun32.exe	82.8229		1	3	0	0	0.14	1.24	
wfshell.exe	97.9361		2	9	0	0	0.35	5.7	
winlogon.exe	97.9347		2	9	0	0.42	0.28	4.48	
wordpad.exe	-	-	0	0	0	0	0	0	-
wuauclt.exe	-	-	0	0	0	0	0	0	-

Figure 10.44: The Application Activity data report

Also, to view the top-n users of the application at the server-level, click on the **Top <N> users** link corresponding to the application. Figure 10.45 will then appear listing the top-n users of the application on the chosen **Server**.



Application Activity Report - Citrix_server_8_180:1494

Top Users In --Default-- In Ccsvchst.exe BACK

USERNAME	NO OF MEASUREMENTS WITH ACCESS TO CC...
xenappsession\administrator	1081
citrix\xauser2	544
citrix\xauser1	104
citrix\administrator	84
citrix\gptest	23
xauser1	1
citrix\ctxuser	1

Figure 10.45: Top users of the application at the server-level

If, at step 16 above, if all the **Components** of a chosen **Component Type** or the *All Applications* options had been chosen, then an additional **Aggregate based on** field will appear, as depicted by Figure 10.41. While monitoring the applications executing on all the servers in a chosen **Zone**, you can indicate whether the measures to be displayed in the report are to be aggregated at the zone-level or the individual server-level. Selecting the **Zone** option against **Aggregate based on** will ensure that the usage metrics displayed in the report for the chosen application(s) is aggregated across all the servers in the selected zone. Clicking on the **Top <N> users** link corresponding to an application in this report will therefore reveal the top-n users of the application across the entire zone (see Figure 10.47).

Application Activity Report – VMware vSphere VDI

Application	% Time In Use	No Of Unique Users	Num Procs		CPU Util		Memory Util	
			Avg	Max	Avg	Max	Avg	Max
calc.exe	39.3939		1	1	0	0	0.01	0.62
ccsvchst.exe	97.9805		2	9	0.01	0.83	0.29	3.64
cmd.exe	20.8388		1	10	0	0	0.08	2.1
concentr.exe	83.0931		1	3	0	0	0.08	1.16
conhost.exe	20.8388		1	10	0	0	0.1	2.33
csrss.exe	97.9805		2	9	0	0	0.13	1.77
dllhost.exe	100		1	1	0	0	0	0.22
dwm.exe	97.9805		2	9	0	0	0.18	2.53
editplus.exe	4.7182		1	1	0	0	0.01	0.6
explorer.exe	83.0931		1	3	0	1.59	0.66	3.52
iexplore.exe	2.6631		1	1	0	0	0.04	1.49
logonui.exe	0.0666		1	1	0	0	0	1.23
mmc.exe	19.3416		1	1	0	2.55	0.04	3.24
notepad.exe	10.0457		1	1	0	0	0.01	0.37
pnamain.exe	83.0931		1	3	0	0.51	0.14	1.39
powershell.exe	100		1	1	0	0	0	0.1
radeobj.exe	83.082		1	3	0	0	0.13	1.12
rdpclip.exe	80.4718		1	2	0	0	0.08	0.43
receiver.exe	83.0931		1	3	0	0.37	0.17	1.47
rundll32.exe	4.6636		1	1	0	0	0.02	0.42
taskeng.exe	3.0303		1	1	0	0	0	0.39
taskhost.exe	97.9805		2	9	0	0.41	0.37	3.82
taskmgr.exe	15.8585		1	2	0	0.39	0.07	1.14
tstheme.exe	-	-	0	0	0	0	0	0
vcddaemon.exe	83.0931		1	3	0	0	0.03	0.68
w3wp.exe	100		1	1	0	0.36	0.19	3.4
wfcrun32.exe	83.0931		1	3	0	0	0.14	1.24
wfshell.exe	97.9805		2	9	0	0	0.35	5.7
winlogon.exe	97.9791		2	9	0	0.42	0.28	4.48
wordpad.exe	-	-	0	0	0	0	0	0

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Application	% Time In Use	No Of Unique Users	Num Procs		CPU Util		Memory Util	
			Avg	Max	Avg	Max	Avg	Max
calc.exe	39.3939		1	1	0	0	0.01	0.62
ccsvchst.exe	97.9805		2	9	0.01	0.83	0.29	3.64
cmd.exe	20.8388		1	10	0	0	0.08	2.1
concentr.exe	83.0931		1	3	0	0	0.08	1.16
conhost.exe	20.8388		1	10	0	0	0.1	2.33
csrss.exe	97.9805		2	9	0	0	0.13	1.77
dllhost.exe	100		1	1	0	0	0	0.22
dwm.exe	97.9805		2	9	0	0	0.18	2.53
editplus.exe	4.7182		1	1	0	0	0.01	0.6
explorer.exe	83.0931		1	3	0	1.59	0.66	3.52
iexplore.exe	2.6631		1	1	0	0	0.04	1.49
logonui.exe	0.0666		1	1	0	0	0	1.23
mmc.exe	19.3416		1	1	0	2.55	0.04	3.24
notepad.exe	10.0457		1	1	0	0	0.01	0.37
pnamain.exe	83.0931		1	3	0	0.51	0.14	1.39
powershell.exe	100		1	1	0	0	0	0.1
radeobj.exe	83.082		1	3	0	0	0.13	1.12
rdpclip.exe	80.4718		1	2	0	0	0.08	0.43
receiver.exe	83.0931		1	3	0	0.37	0.17	1.47
rundll32.exe	4.6636		1	1	0	0	0.02	0.42
taskeng.exe	3.0303		1	1	0	0	0	0.39
taskhost.exe	97.9805		2	9	0	0.41	0.37	3.82
taskmgr.exe	15.8585		1	2	0	0.39	0.07	1.14
tstheme.exe	-	-	0	0	0	0	0	0
vcddaemon.exe	83.0931		1	3	0	0	0.03	0.68
w3wp.exe	100		1	1	0	0.36	0.19	3.4
wfcrun32.exe	83.0931		1	3	0	0	0.14	1.24
wfshell.exe	97.9805		2	9	0	0	0.35	5.7
winlogon.exe	97.9791		2	9	0	0.42	0.28	4.48
[illegible]	0.0666		2	2	0	0	0	1.23
mmc.exe	19.3416		1	1	0	2.55	0.04	3.24
notepad.exe	10.0457		1	1	0	0	0.01	0.37
pnamain.exe	83.0931		1	3	0	0.51	0.14	1.39
powershell.exe	100		1	1	0	0	0	0.1
taskeng.exe	3.0303		1	1	0	0	0	0.39
taskhost.exe	97.9805		2	9	0	0.41	0.37	3.82
taskmgr.exe	15.8585		1	2	0	0.39	0.07	1.14
tstheme.exe	-	-	0	0	0	0	0	0
vcddaemon.exe	83.0931		1	3	0	0	0.03	0.68
w3wp.exe	100		1	1	0	0.36	0.19	3.4
wfcrun32.exe	83.0931		1	3	0	0	0.14	1.24
wfshell.exe	97.9805		2	9	0	0	0.35	5.7
winlogon.exe	97.9791		2	9	0	0.42	0.28	4.48
wordpad.exe	-	-	0	0	0	0	0	0

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Figure 10.46: Zone-based aggregation

Top Users In --Default-- In Citrix_xen_8_180:1494 / Ccsvchst.exe BACK

USERNAME	NO OF MEASUREMENTS WITH ACCESS TO CIT...
citrix\xauser2	2145
xenappsession\administrator	1611
citrix\administrator	305
citrix\xauser1	105
citrix\gptest	20
xauser1	1
citrix\ctxuser	1

Figure 10.47: Top application users at the zone-level

19. On the other hand, if you select the **Server** option from **Aggregate based on**, then the report will reflect the usage of every chosen application(s) on every server in the selected zone - in other words, the report will display a different set of metrics for every server-application combination (see Figure 10.48). In this case therefore, clicking on the **Top <N> users** link that corresponds to a server-application combination will list the top-n users of that application on that server (see Figure 10.49).

Application Report - Citrix MF XP:a1

Server /Application	% Time in use per server	No of unique users	Num processes		Cpu util		Memory util		Top 10 users
			Avg	Max	Avg	Max	Avg	Max	
Citrix_MF_XP_120:1494 / wuauclt.exe	100	4	1	1	0	0	0.49	0.87	
Citrix_MF_XP_120:1494 / ssonsvr.exe	100	6	6.67	7	0	0.5	1.53	1.78	
Citrix_MF_XP_120:1494 / mspaint.exe	100	1	1	1	0	0.52	0.24	0.7	
Citrix_MF_XP_120:1494 / iexplore.exe	100	4	4.72	5	0.16	1.62	16.93	18.91	
Citrix_MF_XP_120:1494 / editplus.exe	100	1	1	1	0	0	0.61	0.86	

Application Report - Citrix:a1

Server /Application	% Time in use per server	No of unique users	Num processes		Cpu util		Memory util		Top 10 users
			Avg	Max	Avg	Max	Avg	Max	
Citrix_120:1494 / wuauclt.exe	100	4	1	1	0	0	0.49	0.87	
Citrix_120:1494 / ssonsvr.exe	100	6	6.67	7	0	0.5	1.53	1.78	
Citrix_120:1494 / mspaint.exe	100	1	1	1	0	0	0.24	0.7	
Citrix_120:1494 / iexplore.exe	100	4	4.71	5	0.16	3.17	16.93	18.93	
Citrix_120:1494 / editplus.exe	100	1	1	1	0	0.41	0.61	0.86	

Figure 10.48: Aggregation at the server-level

Figure 10.49: Top application users at the server-level

20. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the **PDF** icon in that page.

You can configure the '**N**' in the **Top <N>** applications, by editing the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory). In the **[APPLICATION_REPORT]** section of this file, set the **Top** parameter to a particular number as indicated below:

```
[CITRIX_APPLICATION_REPORT]
Top=10
```

In the example above, **Top** has been set to **10**. This ensures that all '**Top <N>**' hyperlinks in the Citrix Application Report page now read as "**Top 10**". Moreover, clicking on the **Top 10** hyperlink will list the top 10 applications in terms of utilization.

In order to configure additional information to be displayed in the report, you will have to edit the **[APPLICATION_REPORT]** section of the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. By default, the **[APPLICATION_REPORT]** section will contain the following specifications:

```
[APPLICATION_REPORT]
Citrix_MF_XP:CtxAppTest:Number_of_processes#No of Processes=Avg
Citrix_MF_XP:CtxAppTest:Cpu_util#Cpu util=Avg
Citrix_MF_XP:CtxAppTest:Memory_util#Memory util=Avg
Terminal:TermAppTest:Number_of_processes#No of Processes=Avg
Terminal:TermAppTest:Cpu_util#Cpu util=Avg
Terminal:TermAppTest:Memory_util#Memory util=Avg
```

Close scrutiny of the default specifications reveals the following format:

<InternalComponentType>:<InternalTest>:<InternalMeasure>#<Display name of Measure>=<Comma-separated list of functions to be executed on the value of the Measure>

Accordingly, in the first line of the default specification:

- *Citrix_MF_XP* is the *<InternalComponentType>*
- *CtxAppTest* is the *<InternalTest>*
- *Number_of_processes* is the *<InternalMeasure>*
- *No of Processes* is the *<Display name of Number_of_processes>*

If a display name is not provided for a measure, then the actual measure name will automatically become the display name.

- *Avg* is the function that will be executed on the value of the *Number_of_processes* measure

To ascertain the internal component-type, test, and measure names, follow the procedure detailed in Page 212 of this manual. This indicates that by default, the *Avg* of the *Number_of_processes*, *Cpu_util*, and *Mem_util* measures of the *CtxAppTest* will be available in every 'Citrix' application report. Similarly, by default, the Avg of the Number_of_processes, Cpu_util, and Mem_util measures of the TermAppTest will be available in every 'Terminal server' application report.

The **default measures** mentioned above **should not be removed** from the **[APPLICATION_REPORT]** section. However, the following details pertaining to these default measures can be changed, if need be:

- The display name of the default measures
- The functions to be executed on the default measure. For example, if you want the application report to display both the *Avg* and *Max* values of the *Number_of_processes* measure, the default specification can be changed as follows:

```
Citrix_MF_XP:CtxAppTest:Number_of_processes#No of
Processes=Avg,Max
```

Besides, you can add more measure specifications in the format specified above. **Before configuring more measures, determine the internal component type, test, and measure names using the procedure discussed in Page 212 of this manual. Note that a report can contain a maximum of 17 columns of data.**

- While generating any of the above-mentioned **CITRIX / VDI** reports, you can make sure that specific descriptors are omitted from the *Avg, Max, Min* computations for the configured measures, by specifying the descriptor names in the following format in the **[INFOS_TO_BE_OMITTED]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory):

<InternalTest>:<InternalMeasure>=<Descriptor>

For example, to ensure that the *Summary* descriptor of *SystemTest* is excluded while calculating the average of *Cpu_util*, provide the following specification in the **[INFOS_TO_BE_OMITTED]** section:

```
[INFOS_TO_BE_OMITTED]
SystemTest:Cpu_util=Summary
```

- If the eG license disables the detailed diagnosis capability, or if the diagnosis frequencies are set to 0, then the following **THIN CLIENT** reports cannot be generated: **APPLICATION**, **USER**, and **SESSION**.

10.6 Application Usage Report

When planning the future capacity of their critical Citrix server farms, administrators need to consider how the applications published on the farm have been utilized in the past, so that the future load on the farm can be accurately predicted, load-balancing rules appropriately changed, and capacity decisions accordingly taken. The **Application Usage Report** provides administrators with the application usage insights that they require for taking these crucial capacity decisions. With the help of this report, administrators can tell:

- The total number of instances of an application that were accessed by users to the farm in the specified timeline;
- The number of requests for a chosen application that were serviced by each server in the farm during the said timeline

Besides revealing the total load (in terms of usage) an application generated on the farm during the given timeline, this report also sheds light on load-balancing irregularities in the farm, which will have to be looked into to maximum farm performance.

To generate this report, do the following:

1. Select the **Application Usage** option from the **Citrix / VDI Reports** node of the **REPORTS BY FUNCTION** tree.
2. When Figure 10.50 appears, do the following:

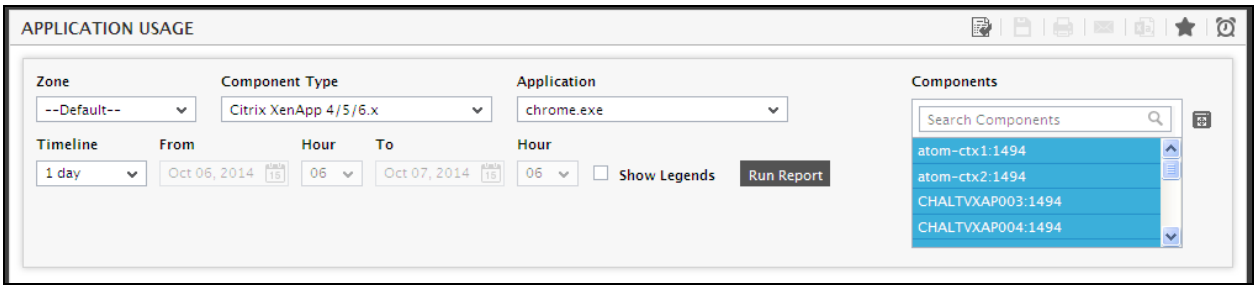


Figure 10.50: Generating the Application Usage report

3. Select the **Zone** to which the servers of interest to you belong. If no zones have been configured in your environment, then all the managed servers in the environment will be automatically grouped under a zone named *Default*; in such cases therefore, select the *Default* zone.
4. Pick the **Component Type** for which this report is to be generated from this list.
5. If **Citrix XenApp/Citrix XenApp4/5/6.x** is chosen from the **Component Type** list, then an additional **Worker Group** list box will appear. Worker groups are collections of XenApp servers, residing in the same farm, that are managed as a single unit. You can publish applications to a worker group. Select a worker group from this list if you wish to view the usage of a **User** belonging to that particular worker group. By default, **Any** option is selected from this list.

Note

The **Worker Group** list box will appear only if the **SHOW WORKER GROUPS** flag is set to **Yes** while configuring the **Citrix Applications** test.

---

6. All components of the chosen type will then be listed in the **Components** list box. Select the servers for which this report is to be generated. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. A **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and **Select** the ones to be included for generating the report.
7. This will populate the **Application** drop-down with all applications published on the chosen servers. Select the application, the usage of which is to be analyzed by this report.
8. Then, specify the **Timeline** for the graph. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

- The default **Timeline** can be set using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Configure -> Reports -> Consolidated. For more details regarding this page, refer to Section 3.1.5.4 of this manual.
- Shorter the **Timeline** for a report, lighter would be the query that is executed on the database, and faster the report generation. Report **Timelines** that run across many weeks therefore, cause excessive strain on the database, thus slowing-down report generation. To save the eG backend from injury, eG Enterprise automatically restricts the maximum **Timeline** for which a thin client report can be generated to the lower of the following values:

- the value of the **CtxLoginTest** parameter in the **[DDD_CLEANUP]** section of the **eg_format.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory)
- the value of the **MaxTimeline** parameter in the **[MISC]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory).
- The maximum timeline for which the current user to eG Reporter is permitted to generate reports;

The **[DDD_CLEANUP]** section is where you define the interval (in days) at which the detailed diagnosis of specific tests is to be purged from the database. For the **CtxLoginTest**, the default interval is set to 32 days (i.e., just over a month), indicating that, by default, the detailed diagnosis of the **CtxLoginTest** is cleared from the database at the end of every month. Since critical thin client reports are generated based on the detailed diagnosis information, a **Timeline** that exceeds the duration set against **CtxLoginTest** would result in a report that displays invalid/no data. This duration however, is configurable. Similarly, you can also configure a **MaxTimeline** in the **[MISC]** section of the **eg_report.ini** file. By default, this parameter is set to **168** (hours), indicating that the maximum **Timeline** for a thin client report is **1 week** (i.e., 24 * 7 = 168 hours). Also, while creating user profiles using the eG administrative interface, an administrator can indicate the maximum timeline for which that user can generate reports, so as to avoid long running reports. Now, assume that you have set the **CtxLoginTest** parameter to 21 days (i.e., 3 weeks) and the **MaxTimeline** parameter to 336 hours (i.e., 2 weeks). Also, say that user *john* with access rights to eG Reporter has been configured to generate reports for a maximum timeline of 1 week. Therefore, whenever user *john* logs into eG Reporter and attempts to generate a thin client report, eG Enterprise compares the three values, picks the lowest of the three, and sets that value as the maximum **Timeline** for thin client reports. In our example, the maximum timeline settings of user *john* (i.e., 1 week) is the lowest Therefore, the maximum value that will be available for selection from the **Fixed Timeline** list box in the thin client report page will be **1 week**. Note that this timeline restriction does not apply to fixed timeline settings alone. If a user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification is equal to or below the lowest of the three values discussed above. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

9. In addition to the settings discussed above, this report comes with a set of default specifications. These settings

are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **RUN REPORT BUTTON** soon after you pick an **Application**. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.51). The steps below discuss each of these settings and how they can be customized.

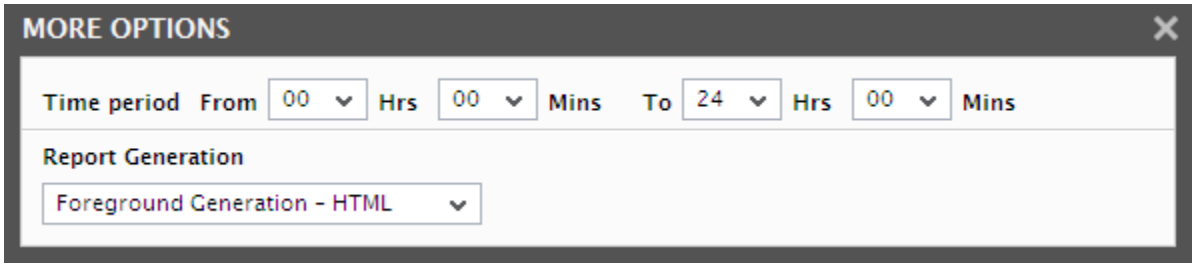


Figure 10.51: The default settings for generating an Application usage report for a thin client component

10. Specify the start time and end time for report generation against the **Time period** field (see Figure 10.51).

Note

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

12. Finally, click the **Run Report** button to generate the report.

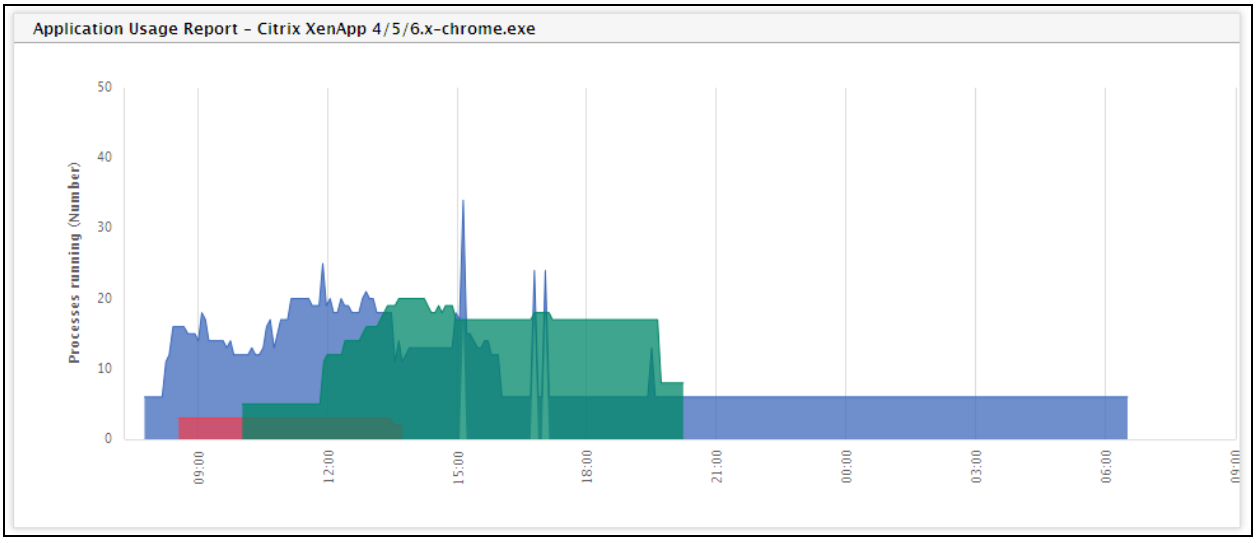


Figure 10.52: The Thin Client Application Usage report

13. The report in Figure 10.52 plots the cumulative values of the number of instances of the chosen application that were accessed by users to the farm during the given timeline. As you can see, this report plots values in a 'stack format', so that users can easily determine total usage and per-server usage in a single glance.

10.7 User Logon Performance Report

Administrators are often interested in figuring out the login duration of the each user in the Citrix XenApp farms. They would like to identify the user who has taken the maximum time duration to login into the server. The **USER LOGON PEROFRMANCE** report addresses this need. Using this report, administrators can identify the servers that

were slow in responding to the user logon requests and rectify the problems caused due to the poor responsiveness of the servers.

To generate this report, do the following:

1. Select the **User Logon Performance** option from the **Citrix / VDI Reports** node of the **REPORTS BY FUNCTION** tree.
2. When Figure 10.53 appears, do the following:

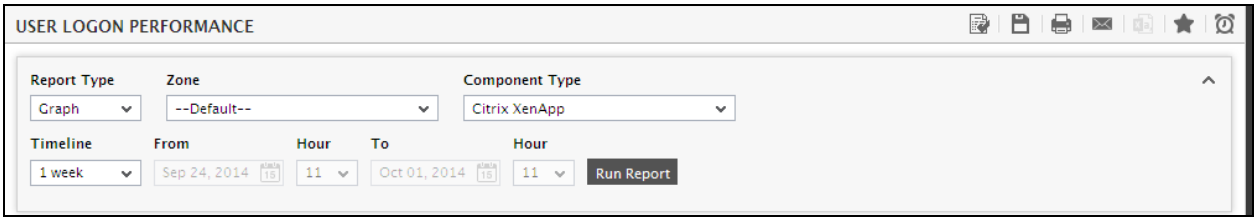


Figure 10.53: Generating the User Logon Performance report

3. Choose a **Report Type** (Graph or Data) for generating the report. The default **Report Type** is **Graph**. A **Graph** report graphically represents the measure data.
4. Select the **Zone** to which the servers of interest to you belong. If no zones have been configured in your environment, then all the managed servers in the environment will be automatically grouped under a zone named *Default*; in such cases therefore, select the *Default* zone.
5. Next, from the **Component Type** list, select the virtual server type for which this report is to be generated.
6. If the **Report Type** is **Data**, then, in the **Components** list box, all the components pertaining to the chosen **Component Type** will be listed. Select the servers for which this report is to be generated. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Components** list. A **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and **Select** the ones to be included for generating the report.
7. If the **Report Type** is **Data**, then, in the **User** list box, all the users logged into the chosen **Components** will be listed. If the **User** list is too long, then viewing all the users and selecting the ones you need for report report generation could require endless scrolling. To avoid this, you can click the icon next to the **User** list. This will open the **USER** pop up window using which you can view almost all the users in a single interface and **Select** the ones for which the report is to be generated. If there are still too many users in the list to choose from, you can narrow your search further by using the **Search Options** text box. Specify the whole/part of the user name to search for in this text box, and click the icon next to it. The **User** list will then be populated with all user names that embed the specified search string. Select the user of your choice from this list.
8. Then, specify the **Timeline** for the report. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

- The default **Timeline** can be set using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Configure -> Reports -> Consolidated. For more details regarding this page, refer to Section 3.1.5.4 of this manual.
- Shorter the **Timeline** for a report, lighter would be the query that is executed on the database, and faster the report generation. Report **Timelines** that run across many weeks therefore, cause excessive strain on the database, thus slowing-down report generation. To save the eG backend from injury, eG Enterprise automatically restricts the maximum **Timeline** for which a thin client report can be generated to the lower of the following values:

- the value of the **CtxLoginTest** parameter in the **[DDD_CLEANUP]** section of the **eg_format.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory)
- the value of the **MaxTimeline** parameter in the **[MISC]** section of the **eg_report.ini** file (in the **<EG_INSTALL_DIR>\manager\config** directory).
- The maximum timeline for which the current user to eG Reporter is permitted to generate reports;

The **[DDD_CLEANUP]** section is where you define the interval (in days) at which the detailed diagnosis of specific tests is to be purged from the database. For the **CtxLoginTest**, the default interval is set to 32 days (i.e., just over a month), indicating that, by default, the detailed diagnosis of the **CtxLoginTest** is cleared from the database at the end of every month. Since critical thin client reports are generated based on the detailed diagnosis information, a **Timeline** that exceeds the duration set against **CtxLoginTest** would result in a report that displays invalid/no data. This duration however, is configurable. Similarly, you can also configure a **MaxTimeline** in the **[MISC]** section of the **eg_report.ini** file. By default, this parameter is set to **168** (hours), indicating that the maximum **Timeline** for a thin client report is **1 week** (i.e., 24 * 7 = 168 hours). Also, while creating user profiles using the eG administrative interface, an administrator can indicate the maximum timeline for which that user can generate reports, so as to avoid long running reports. Now, assume that you have set the **CtxLoginTest** parameter to 21 days (i.e., 3 weeks) and the **MaxTimeline** parameter to 336 hours (i.e., 2 weeks). Also, say that user *john* with access rights to eG Reporter has been configured to generate reports for a maximum timeline of 1 week. Therefore, whenever user *john* logs into eG Reporter and attempts to generate a thin client report, eG Enterprise compares the three values, picks the lowest of the three, and sets that value as the maximum **Timeline** for thin client reports. In our example, the maximum timeline settings of user *john* (i.e., 1 week) is the lowest Therefore, the maximum value that will be available for selection from the **Fixed Timeline** list box in the thin client report page will be **1 week**. Note that this timeline restriction does not apply to fixed timeline settings alone. If a user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification is equal to or below the lowest of the three values discussed above. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

9. In addition to the settings discussed above, this report comes with a set of default specifications. These settings

are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick the criteria for generating the report. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.54). The steps below discuss each of these settings and how they can be customized.

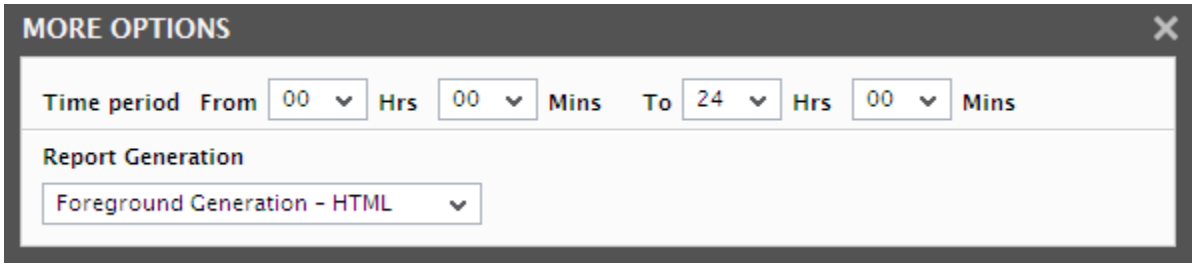


Figure 10.54: The default settings for generating the User Logon Performance report

10. Specify the start time and end time for report generation against the **Time period** field (see Figure 10.54).

Note

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

Note

12. Finally, click the **Run Report** button to generate the report.

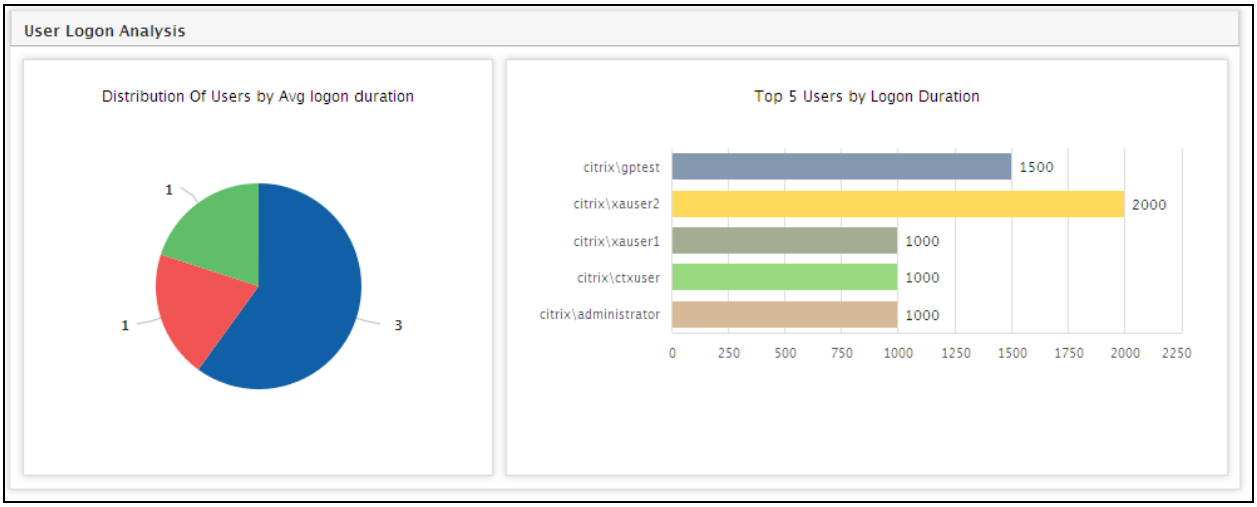
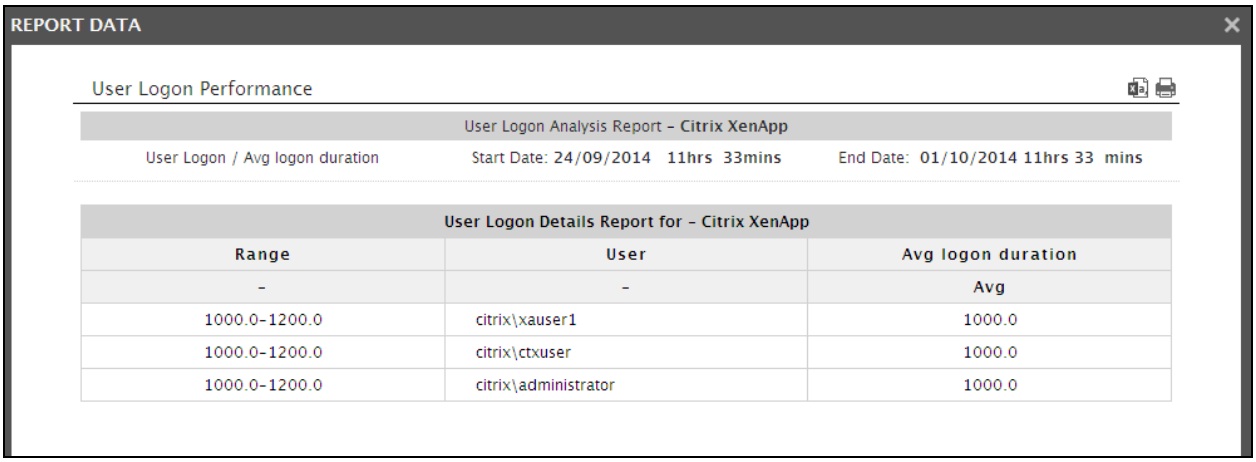


Figure 10.55: The graphical User Logon Performance report

13. If the **Report Type** is **Graph** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 10.55, which will comprise of the following:
    - A distribution pie chart reveals the number of users in different distribution ranges of their login time (see Figure 10.55). The distribution ranges are obtained based on the first of the configured functions for the chosen **Measure**. For instance, assume that *Avg logon duration* is the chosen **Measure**. Say that you have configured to display the *Avg* and *Max* of *Avg logon duration* in this report. Typically, both these configured values will appear only in a **Data** report. In the case of a **Graph** report however, the first of the two functions - i.e., *Avg* of *Avg logon duration* - alone is calculated for every component of the chosen component-type. The resulting pie chart enables administrators to deduce, at a glance, the number of users who were logged in for a longer/shorter duration. Clicking on a particular slice in the pie chart lists the users who fall within the value range represented by that slice (see Figure 10.56). Against every user, the actual values for each of the configured functions (*Avg*, in our example), will be displayed.


REPORT DATA

User Logon Performance

User Logon Analysis Report – Citrix XenApp

User Logon / Avg logon duration | Start Date: 24/09/2014 11hrs 33mins | End Date: 01/10/2014 11hrs 33 mins

User Logon Details Report for – Citrix XenApp

Range	User	Avg logon duration
-	-	Avg
1000.0-1200.0	citrix\xauser1	1000.0
1000.0-1200.0	citrix\ctxuser	1000.0
1000.0-1200.0	citrix\administrator	1000.0

Figure 10.56: A list of users with *Avg Logon duration* in a given range

---

- By default, the chart type for distribution is a pie chart. However, you can have a bar graph depict the same data instead of a pie chart, by following the steps given below:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Change the value of the **chartTypeForDist** parameter in the **[ZONE_REPORT]** section of this file from the default **Pie**, to **Bar**.
  - Save the **eg_report.ini** file.

Note

- By default, the number of value ranges that need to be configured for the distribution chart is 10. To override this default setting, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Specify a number of your choice against the **nofRangeForDist** parameter in the **[ZONE_REPORT]** section of this file. By default, this parameter will hold the value 10.
  - Save the **eg_report.ini** file.

- Adjacent to the pie chart, you will find a bar chart that indicates the users that have topped/failed in a selected performance realm (i.e., the **Measure**) during the specified **Timeline**. For example, for the *Avg logon duration* measure, this bar chart reveals the top users who were logged in for a longer duration. Like the pie chart, the values for the bar chart are also calculated by applying the first of the configured functions on the chosen **Measure**.

- The number of components to be displayed in the **Top <N> Components** bar chart is configurable. To specify the number, do the following:
  - Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
  - Specify a number of your choice against the **NoOfServersforChart** parameter in the **[ZONE_REPORT]** section of the file. By default, the value displayed here is 10, indicating that, by default, the bar chart will be for the **Top 10 Components**. For example, if you change this value to 5, then a bar chart displaying the **Top 5 Components** will appear.
  - Finally, save the **eg_report.ini** file.

- Similarly, you can configure the depth of the bars in the bar chart by specifying a numeric value against the **3DDepthforChart** parameter in the **[ZONE_REPORT]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory).
- By default, 10 bars will be visible in a single glance in the bar chart. If there are more bars, you will have to scroll down to view them. This default setting can be overridden by editing the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory). The **[ZONE_REPORT]** section of this file contains a **VisibleSamples** parameter that holds the default value 10. You can change this value.

You can configure the colors to be used in the distribution chart and the **Top <N> Components** bar chart in the zone report, by editing the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory. The **[ZONE_REPORT]** section of the file defines the 20 default colors of the distribution and bar charts:

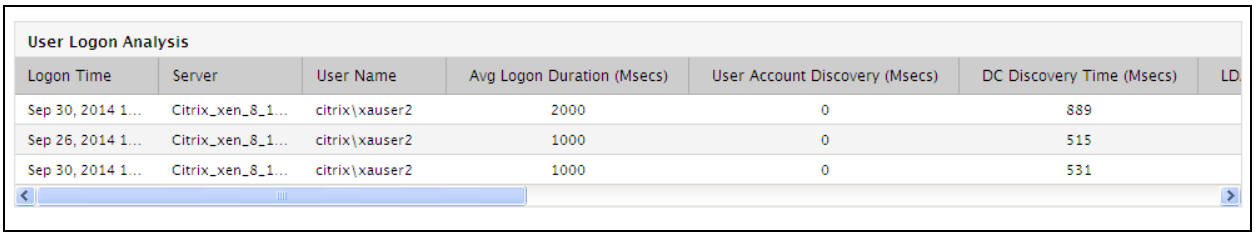
```
[ZONE_REPORT]

ChartColor=#8399b0,#ffd95a,#a4ac91,#98d980,#d5b996,#f48848,#8b8cc2,
#eb4052,#c4b3d0,#b18651,#ebb7ce,#028768,#f5c372,#887c65,#e4c536,
#b5582c,#f94989,#770d72,#97a067,#89aeb7

distColor=#115fa6,#f25454,#60bd68,#b276b2,#81bef7,#a61120,#ffd13e,
#770d72,#887c65,#a4ac91
```

You override the default color settings of the distribution chart by modifying the color-codes specifying against **distColor**. For changing the colors used by the **Top <N> Components** chart, alter the codes listed against the **ChartColor** parameter.

14. If the **Report Type** is **Data** and the option chosen from the **Report Generation** list is **Foreground Generation - HTML**, then, clicking on the **Run Report** button will invoke Figure 10.57, which will provide the individual login details and time of each user.



User Logon Analysis

Logon Time	Server	User Name	Avg Logon Duration (Msecs)	User Account Discovery (Msecs)	DC Discovery Time (Msecs)	LD
Sep 30, 2014 1...	Citrix_xen_8_1...	citrix\xauser2	2000	0	889	
Sep 26, 2014 1...	Citrix_xen_8_1...	citrix\xauser2	1000	0	515	
Sep 30, 2014 1...	Citrix_xen_8_1...	citrix\xauser2	1000	0	531	

Figure 10.57: The Data User Logon Performance report

10.8 VDI Assessment Reports

VDI assessment reports help administrators analyse the performance of virtual desktops. In an infrastructure with hundreds of virtual desktops, administrators need to quickly understand which desktops are consuming the highest amount of resources and which ones are configured with excessive resources. This is where the VDI assessment report helps. By identifying which desktops are taking resources, administrators can determine what action needs to be taken – e.g., prevent specific applications from running on the desktop, ensure that resource consuming desktops run on different physical hosts, etc.

Using this report, you can assess the VDI infrastructure for its resource usage and application activity. Therefore there are two different types of reports that dall under this category. The forthcoming sections will discuss each report in detail.

10.8.1 VDI Resource Usage report

To assess the resource consumption of the desktops in a VDI environment, you can user the **VDI Resource Usage** report. To generate the **VDI Resource Usage** report, do the following:

1. Select the **VDI Resource Usage** option by following the menu sequnce: *REPORTS BY FUNCTION -> Citrix / VDI Reports -> VDI Assessment -> Virtual Desktop Insight*.
2. Figure 10.58 will then appear. Select an option for analysis of the report from the **Analyze by** list. By default, this list will display **Component** as its selection. You can however narrow your search by opting to view only those virtual servers that are part of a service/segment/zone. For this, select the **Zone**, **Service**, or **Segment**, option from the **Analyze By** field:
   - Selecting the **Zone** option will allow you to select the desired zone from the **Zone** list box. To include the virtual servers within a specific subzone, set the **Include subzone** flag to **Yes**.
   - In the same way, to make the virtual servers that are part of a particular segment or service, select **Service** or **Segment** from the **Analyze by** list box. Then, select the desired service or segment from the **Service** or **Segment** list.

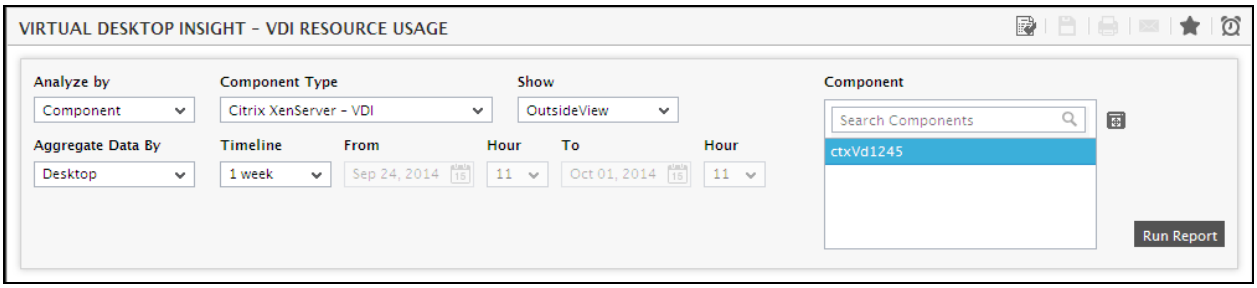


Figure 10.58: Selecting the criteria for the VDI Resource Usage report

3. Next, from the **Component Type** list, select the virtual server type for which this report is to be generated.
4. In the **Component** list box, all the components pertaining to the chosen **Component Type** will be listed. If the **Component** list consists of too many virtual servers, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Component** list. This will open the **COMPONENTS** pop up window using which you can view almost all the components in a single interface and **Select** the ones for which the report is to be generated. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search Components** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.
5. By default, this report will be generated based on the outside view metrics of the chosen **Component**. Therefore, **OutsideView** will be the default selection from the **Show** list box. If the report needs to be generated based on the inside view metrics of the chosen component, then the **InsideView** option will be selected from this list.
6. If you wish to generate the report from the virtual desktops perspective, then select the **Desktop** option from the **Aggregate Data By** list box. If you wish to generate the report from the user-perspective (users who are currently using the desktops), then choose **User** from this list.
7. Next, specify the start time and end time for report generation against the **Time period** field.
8. Specify the report **Timeline**. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

Note

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Submit** button a message box will appear, prompting the user to change the **From** and **To** specification.

9. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick the criteria for generating the report. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.59). The steps below discuss each of these settings and how they can be customized.

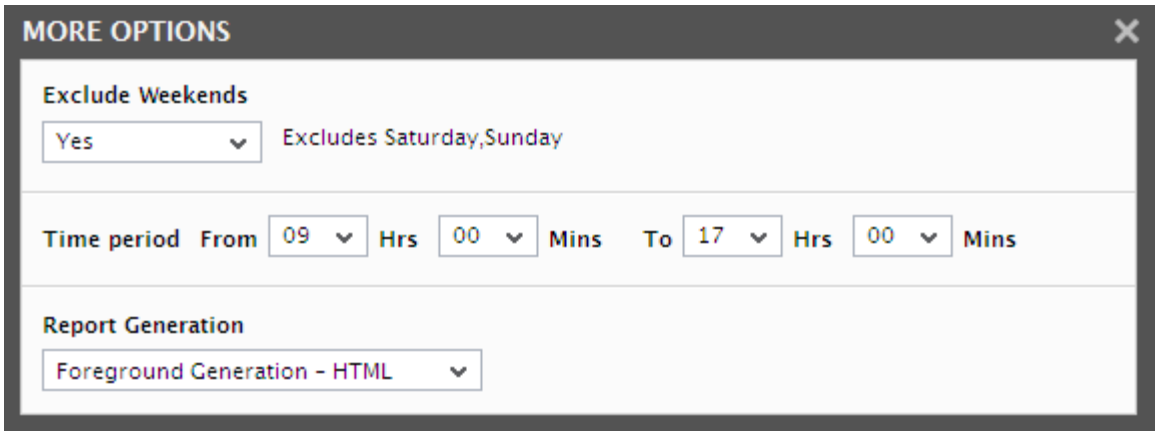


Figure 10.59: The default settings for generating the User Logon Performance report

10. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MEASURE_GROUP]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

11. Specify the start time and end time for report generation against the **Time period** field (see Figure 10.54).
12. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

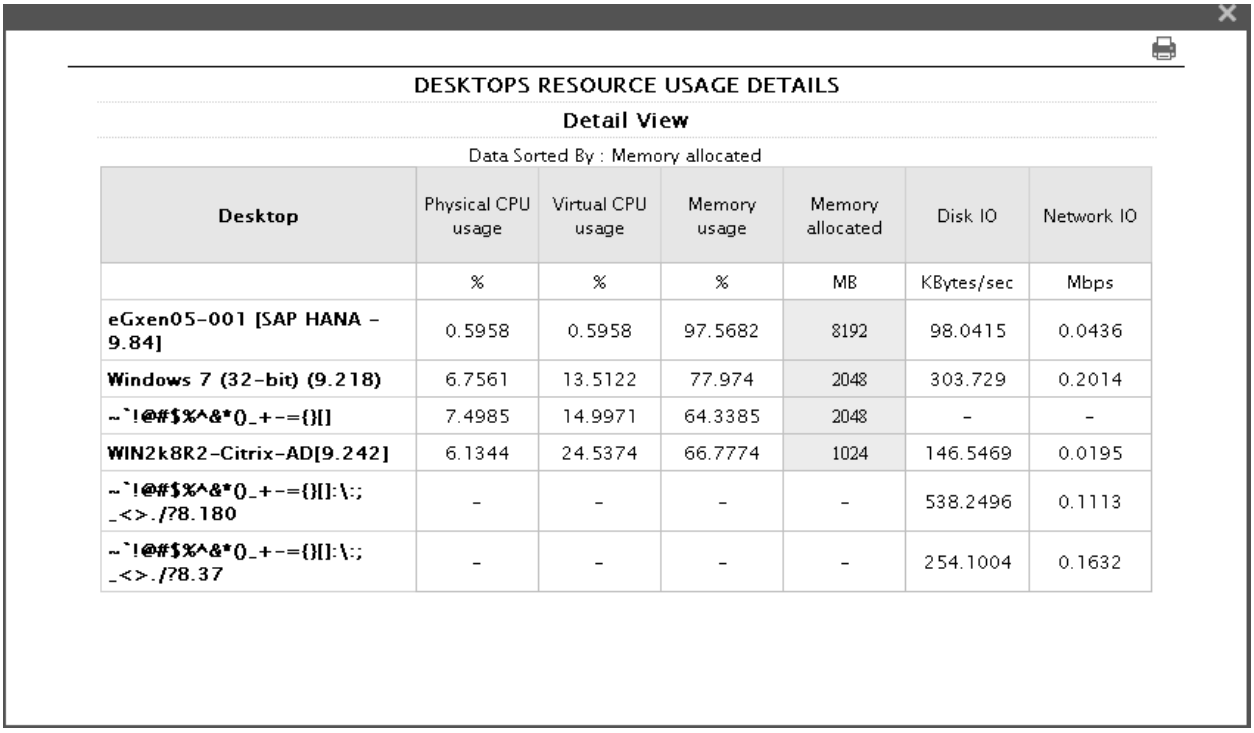
13. Finally, click the **Run Report** button. Figure 10.60 will now appear.

Figure 10.60: The VDI Resource Usage report

14. Figure 10.60 shows a series of distribution pie charts for the virtual desktops based on their Physical CPU usage, Virtual CPU usage, Memory usage, allocated memory, Disk IO and Network IO. Each slice of the pie and their respective colors represent the different levels of desktop resource utilization (VeryLow, Low, Medium and High).

15. Clicking on any of the slices of a particular distribution pie chart will lead you to the **DESKTOPS RESOURCE USAGE DETAILS** pop up window (see Figure 10.61) that contains the resource utilization of all the desktops in data format. The **Data Sorted By** field available in this window will represent the section on which the slice of

pie was actually clicked. If you click on a slice from the **Desktops based on Memory allocated** section, then **Memory allocated** will be displayed in the **Data Sorted By** field. The **Memory allocated** column will be sorted in descending order as shown in Figure 10.61. Using this data report, you can actually correlate the resource usage of the desktops and identify those desktops that are in dire need of additional resources. If the **Desktop** option is chosen from the **Aggregate Data By** list, then the names of the desktops alone will be listed in the **Desktop** column of the **DESKTOPS RESOURCE USAGE DETAILS** pop up window.



DESKTOPS RESOURCE USAGE DETAILS

Detail View

Data Sorted By : Memory allocated

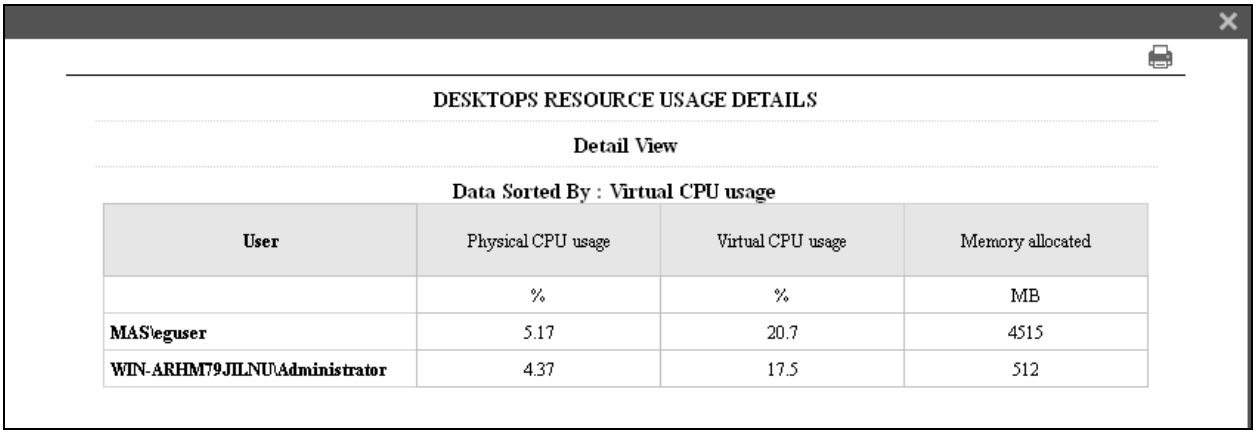
Desktop	Physical CPU usage	Virtual CPU usage	Memory usage	Memory allocated	Disk IO	Network IO
	%	%	%	MB	KBytes/sec	Mbps
eGxen05-001 [SAP HANA - 9.84]	0.5958	0.5958	97.5682	8192	98.0415	0.0436
Windows 7 (32-bit) (9.218)	6.7561	13.5122	77.974	2048	303.729	0.2014
~`!@#$%^&*()_+-={}[]	7.4985	14.9971	64.3385	2048	-	-
WIN2k8R2-Citrix-AD[9.242]	6.1344	24.5374	66.7774	1024	146.5469	0.0195
~`!@#$%^&*()_+-={}[]:\:;_<>./?8.180	-	-	-	-	538.2496	0.1113
~`!@#$%^&*()_+-={}[]:\:;_<>./?8.37	-	-	-	-	254.1004	0.1632

Figure 10.61: The Desktops Resource Usage Details pop up window

16. If **User** option is chosen from the **Aggregate Data By** list of Figure 10.58, then the report will be generated considering the desktops on which users are currently active:

Figure 10.62: The VDI Resource Usage report that is generated when User option is chosen

17. Clicking on a slice of the distribution pie chart will reveal the **DESKTOPS RESOURCE USAGE DETAILS** pop up window which will sport a **User** column unlike the **Desktop** column of Figure 10.61. This **User** column lists the name of the desktop and the user who is currently logged into that desktop (see Figure 10.63).



DESKTOPS RESOURCE USAGE DETAILS

Detail View

Data Sorted By : Virtual CPU usage

User	Physical CPU usage	Virtual CPU usage	Memory allocated
	%	%	MB
MAS\eguser	5.17	20.7	4515
WIN-ARHM79JILNU\Administrator	4.37	17.5	512

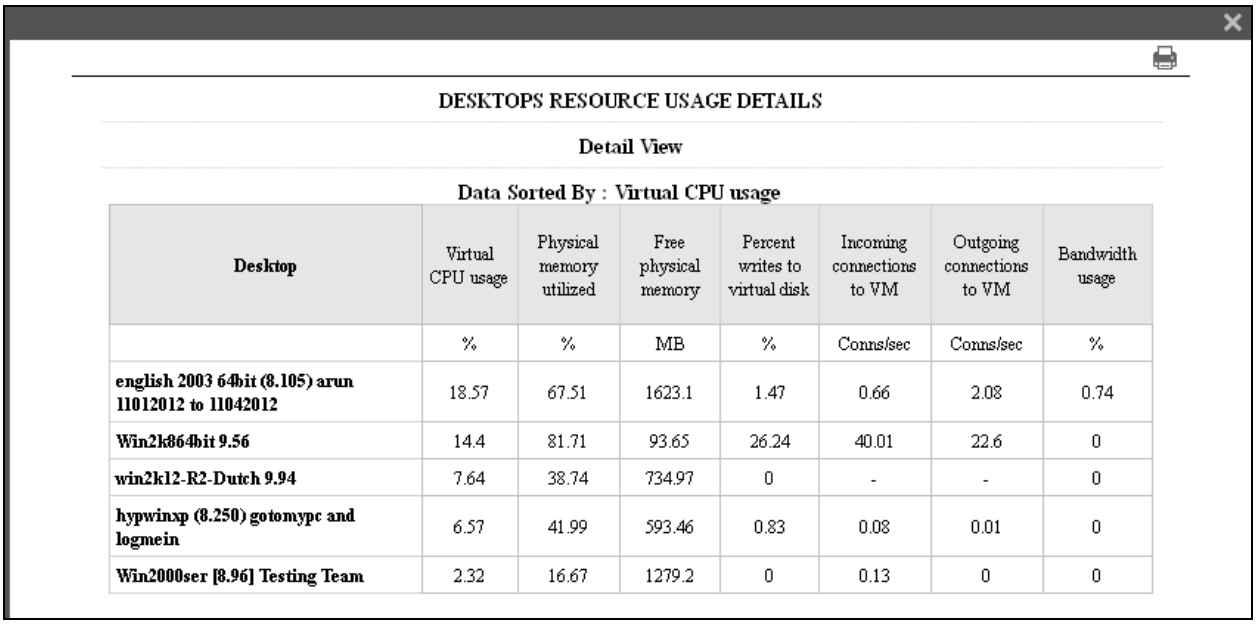
Figure 10.63: The Desktops Resource Usage Details pop up that appears when the User option is selected

18. If **Inside View** option is chosen from the **Show** list and the **Desktop** option is chosen from the **Aggregate Data By**

list, then the report will comprise a series of distribution pie charts (see Figure 10.64) for the *Virtual CPU usage, Physical memory utilized, free physical memory, percent writes to virtual disk, incoming connection to VM, outgoing connections to VM and bandwidth usage*. The distribution pie chart will list only the desktops that have reported measures to the eG Manager during the last measurement period (see Figure 10.64).

Figure 10.64: The VDI Resource usage report when *Inside view* option is selected

19. Clicking on a slice of the distribution pie chart will reveal the **DESKTOP RESOURCE USAGE DETAILS** pop up window which will list the data report of each desktop. Figure 10.65 reveals the data report based on the Virtual CPU usage of the desktops.



DESKTOPS RESOURCE USAGE DETAILS

Detail View

Data Sorted By : Virtual CPU usage

Desktop	Virtual CPU usage	Physical memory utilized	Free physical memory	Percent writes to virtual disk	Incoming connections to VM	Outgoing connections to VM	Bandwidth usage
	%	%	MB	%	Conns/sec	Conns/sec	%
english 2003 64bit (8.105) arun 11012012 to 11042012	18.57	67.51	1623.1	1.47	0.66	2.08	0.74
Win2k864bit 9.56	14.4	81.71	93.65	26.24	40.01	22.6	0
win2k12-R2-Dutch 9.94	7.64	38.74	734.97	0	-	-	0
hypwinxp (8.250) gotomypc and logmein	6.57	41.99	593.46	0.83	0.08	0.01	0
Win2000ser [8.96] Testing Team	2.32	16.67	1279.2	0	0.13	0	0

Figure 10.65: The Desktop Resource Usage Details pop up window displaying the Inside view metrics

20. If **Inside View** option is chosen from the **Show** list and the **User** option is chosen from the **Aggregate Data By** list, then the report will be generated considering the desktops on which the users are currently active (see Figure 10.66).

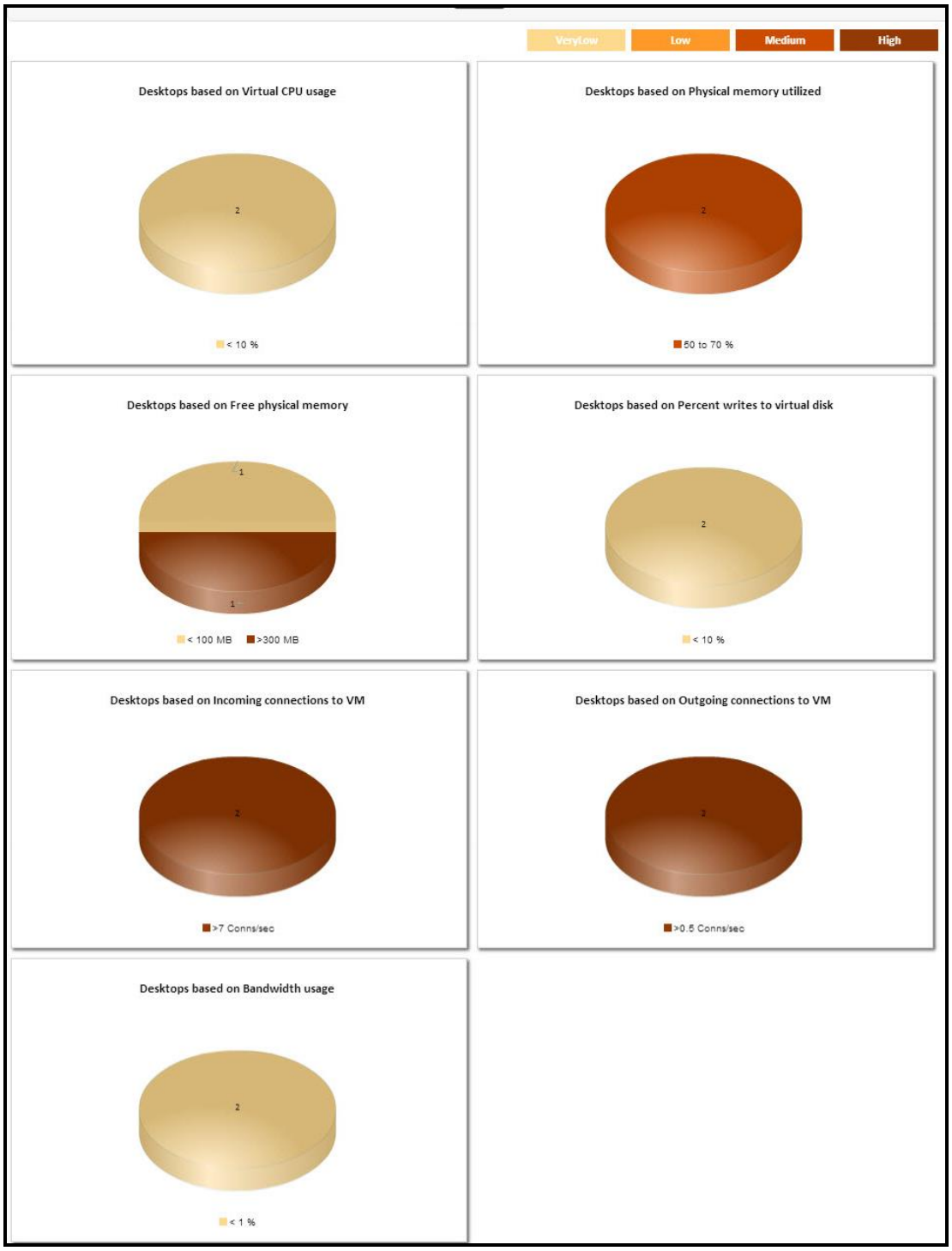
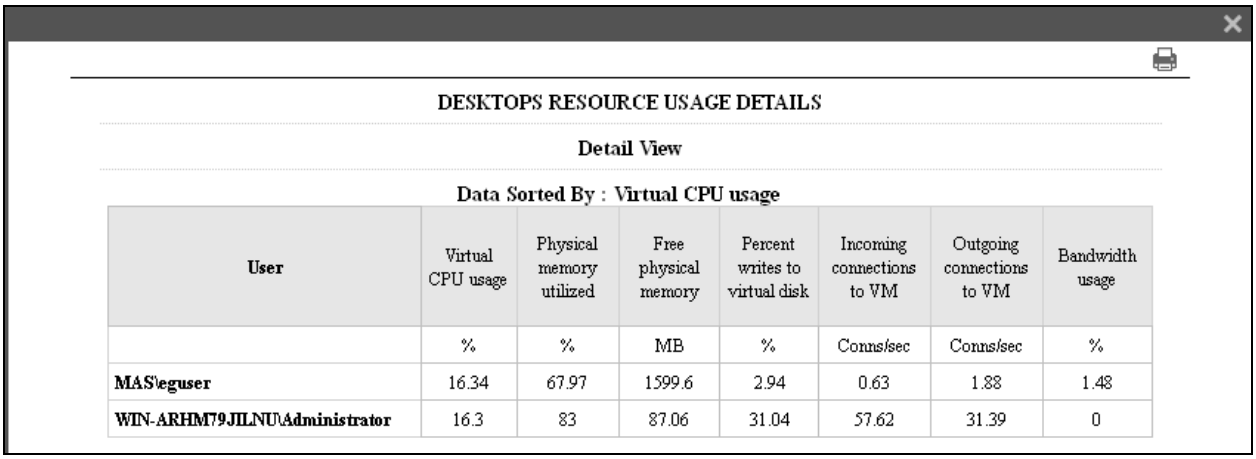


Figure 10.66: The VDI Resource Usage report that is generated when Inside View and User options are chosen

21. Clicking on a slice of the distributed pie chart, say for example – a slice of the Desktops based on *Virtual CPU usage* will reveal the **DESKTOPS RESOURCE USAGE DETAILS** pop up window. The **User** column in the **DESKTOPS RESOURCE USAGE DETAILS** pop up window will list the name of the desktop and the user who is currently logged into that desktop (see Figure 10.67).



DESKTOPS RESOURCE USAGE DETAILS

Detail View

Data Sorted By : Virtual CPU usage

User	Virtual CPU usage	Physical memory utilized	Free physical memory	Percent writes to virtual disk	Incoming connections to VM	Outgoing connections to VM	Bandwidth usage
	%	%	MB	%	Conns/sec	Conns/sec	%
MAS\eguser	16.34	67.97	1599.6	2.94	0.63	1.88	1.48
WIN-ARHM79JILNU\Administrator	16.3	83	87.06	31.04	57.62	31.39	0

Figure 10.67: The Desktops Resource Usage Details window that appears upon clicking a slice of the pie chart

Note

Sometimes, desktops that are powered on during a measurement period may be powered off during another measurement period. But in general, the report will be generated only for the desktops that are currently powered on in the target environment. Administrators may however, wish to take all the desktops into consideration. In such a situation, set the **OmitPoweredOFFVMs** flag in the **[Desktop_Insight_Resource_Usage]** section of the **eg_report.ini** to **No**. This will ensure displaying the measures for all the available desktops in the target environment.

Note

The number of virtual desktops whose data is to be displayed in the **DESKTOP RESOURCE USAGE DETAILS** pop up window is configurable. To specify the number, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- Specify a number of your choice against the **noOfDesktopToDisplay** parameter in the **[DESKTOP_INSIGHT_RESOURCE_USAGE]** section of the file. By default, the value displayed here is 20, indicating that, by default, the data report will be for the **Top 20** virtual desktops. For example, if you change this value to 5, then the data report will display only the **Top 5** virtual desktops in terms of resource usage.
- Finally, save the **eg_report.ini** file.

10.8.2 VDI Application Activity Report

In order to figure out the applications that are extensively used in the VDI environment, use the VDI Application Activity report.

To generate the **VDI Application Activity** report, do the following:

1. Select the **VDI Application Activity** option by following the menu sequence: REPORTS BY FUNCTION -> Citrix / VDI Reports -> VDI Assessment -> Virtual Desktop Insight.
2. Figure 10 will then appear. Select an option for analysis of the report from the **Analyze by** list. By default, this list will display **Component** as its selection. You can however narrow your search by opting to view only those virtual servers that are part of a service/segment/zone. For this, select the **Zone**, **Service**, or **Segment**, option from the **Analyze by** field:
    - Selecting the **Zone** option will allow you to select the desired zone from the **Zone** list box. To include the virtual servers within a specific subzone, set the **Include subzones** flag to **Yes**.
    - In the same way, to make the virtual servers that are part of a particular segment or service, select **Service** or **Segment** from the **Analyze by** list box. Then, select the desired service or segment from the **Service** or **Segment** list.

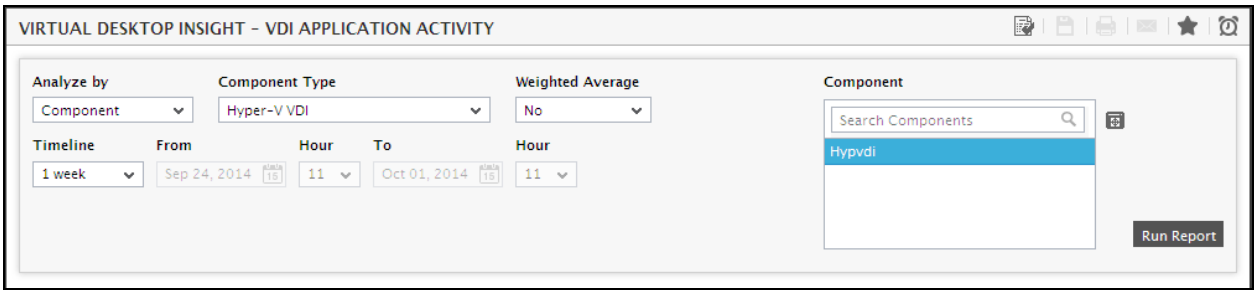


Figure 10.68: Selecting the criteria for the VDI Application Activity report

3. Next, from the **Component Type** list, select the virtual server type for which this report is to be generated.
4. In the **Component** list box, all the components pertaining to the chosen **Component Type** will be listed. If the **Component** list consists of too many virtual servers, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENTS** pop up window will then appear using which you can view almost all the virtual servers in a single interface and **Select** the ones for which the report is to be generated. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search Components** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Component** list will then be populated with all component names that embed the specified search string. Select the component of your choice from this list.
5. Using the **Weighted Average** flag, you can indicate how the **Avg** value is to be computed for a chosen measure for the purpose of this report. The status of the **Weighted Average** flag is relevant only if the **Test** chosen is a descriptor-based test, and the descriptors are dynamic in nature. For instance, the *VDI Applications* test in our example auto-discovers the applications that are currently available on the virtual desktop. For each application that is discovered, the test reports a variety of statistics. Unlike descriptors such as disk partitions or processors that rarely change, the applications are dynamic descriptors, which may change often; in other words, an application that is used by the virtual desktop user now, may not be used by the user during the next measurement period. The *VDI Applications* test will neither report metrics for the inactive descriptors nor display it in the eG monitoring console. This is why, applications are considered 'dynamic descriptors'.

    By default, the **VDI APPLICATION ACTIVITY** report compares the *Avg* value of the chosen measure across all selected descriptors. Since the **Weighted Average** flag is set to **No** by default, this *Avg* is computed as the ratio of the sum total of the measure values reported by a descriptor during the given timeline and the total number of times the test ran during the same timeline. In case of dynamic descriptors however, the *Avg* values so computed may not reveal the 'true picture of performance'. This is because, the test may not discover or report

metrics for dynamic descriptors throughout a given timeline. For example, take the case of the *VDI Applications* test. Say, the test auto-discovered two applications - namely, 'explorer' and 'java' - during its first measurement period; both applications registered a *memory usage* of 30 MB and 60 MB respectively. Assume that the second time the *VDI Applications* test ran, it captured 50 MB of data for the application 'explorer'. Application 'java' however was inactive during the second measurement period, and hence, was not discovered at all. If the **Weighted Average** flag is set to **No** by default, then, the **VDI APPLICATION ACTIVITY** report will plot the *Avg* value of 40 MB (30+50=80/2=40) for the application 'explorer' and 30 MB (60/2=30) again for the application 'java'. If you notice, unlike the application 'explorer', where 40 MB of data was transacted over a period of time, in case of the application 'java', 60 MB of data was transacted at one shot! Logically therefore, the application 'java' has to be ranked above the application 'explorer' in terms of memory usage. However, since the default *Avg* value computation does not clearly bring out this difference, both the applications 'explorer' and 'java' are treated at par in the **VDI APPLCIATION ACTIVITY** report! This is why, in case of dynamic descriptors, you may want to set the **Weighted Average** flag to **Yes**. In this case, the eG Enterprise system expresses *Avg* as the ratio of the sum total of the measure values reported by a descriptor during a given timeline and the 'total number of times that descriptor was active' during the same timeline. This implies that if the **Weighted Average** flag is set to **Yes** in the application example above, the *Avg* value for the application 'explorer' will continue to be 40 (30+50=80/2=40), but the same for the application 'java' will be 60 MB (60/1=60). In the **VDI APPLICATION ACTIVITY** report therefore, the application 'java' will be placed above the application 'explorer', thereby accurately pointing you to the top applications that are consuming too much of memory resources.

6. Specify the report **Timeline**. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Submit** button a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick the criteria for generating the report. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.69). The steps below discuss each of these settings and how they can be customized.

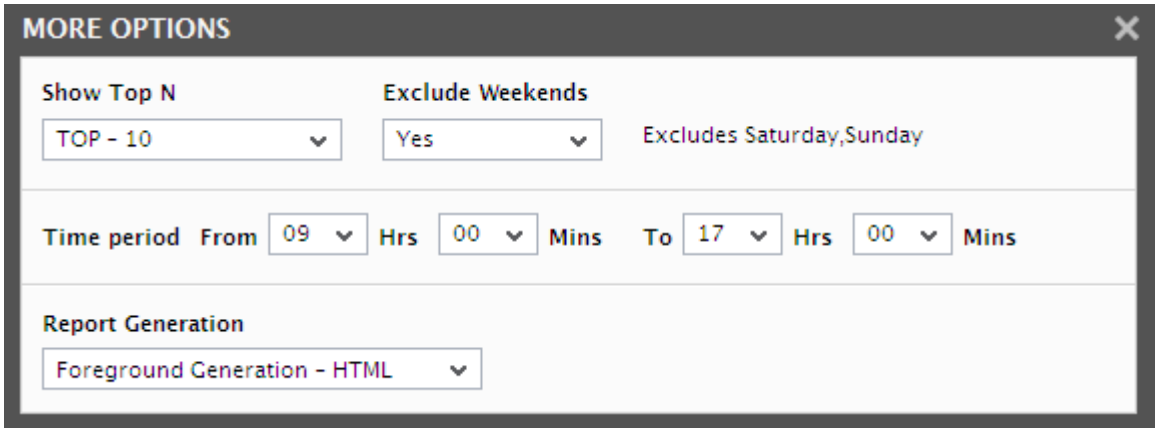


Figure 10.69: The default settings for generating the User Logon Performance report

8. By default, this report will list the activity of the Top 10 applications. If you wish to view the report for the number of applications of your choice, then, you may do so by selecting an option from the **Show Top N** list box.

9. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MEASURE_GROUP]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday,Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday,Saturday**.
- Save the file after making the required changes.

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10. Specify the start time and end time for report generation against the **Time period** field (see Figure 10.69).

11. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

Note

12. Finally, click the **Run Report** button. Figure 10.70 will now appear.

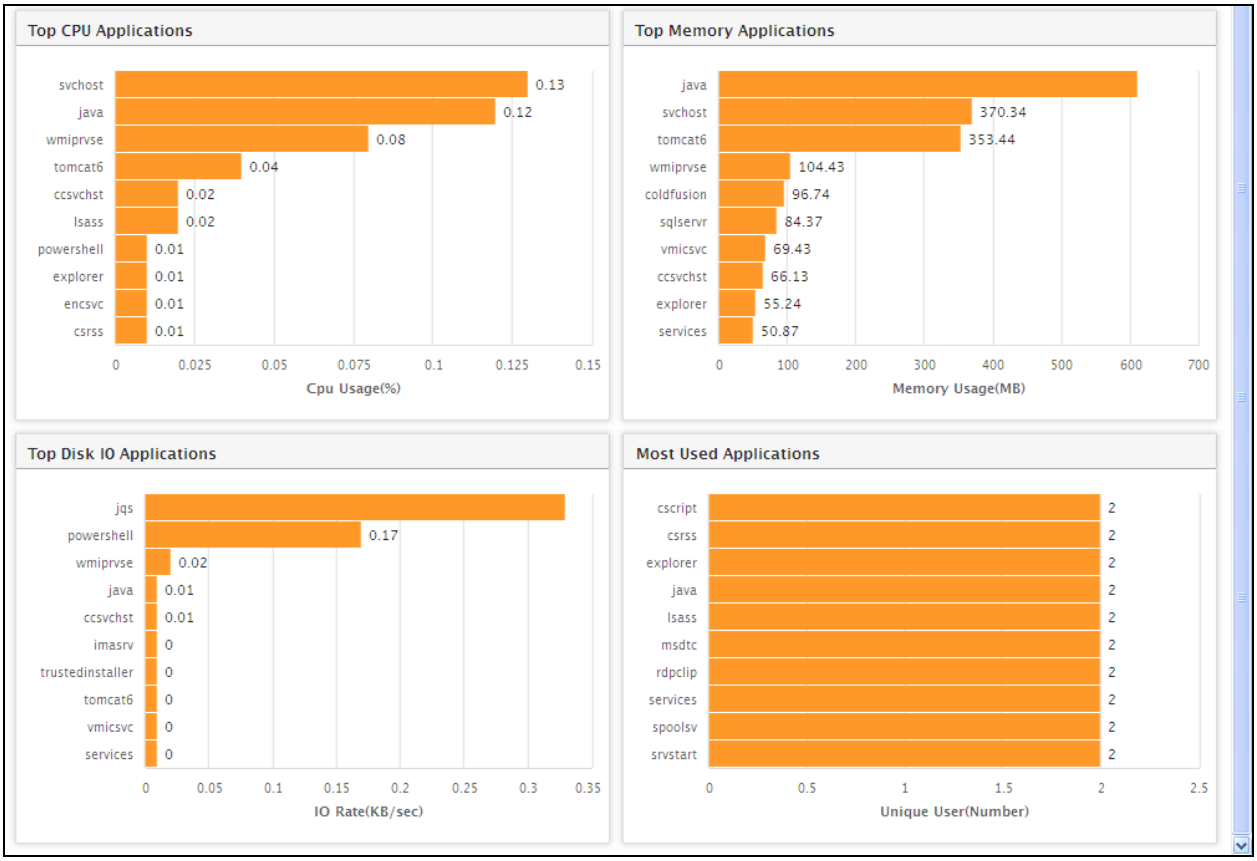
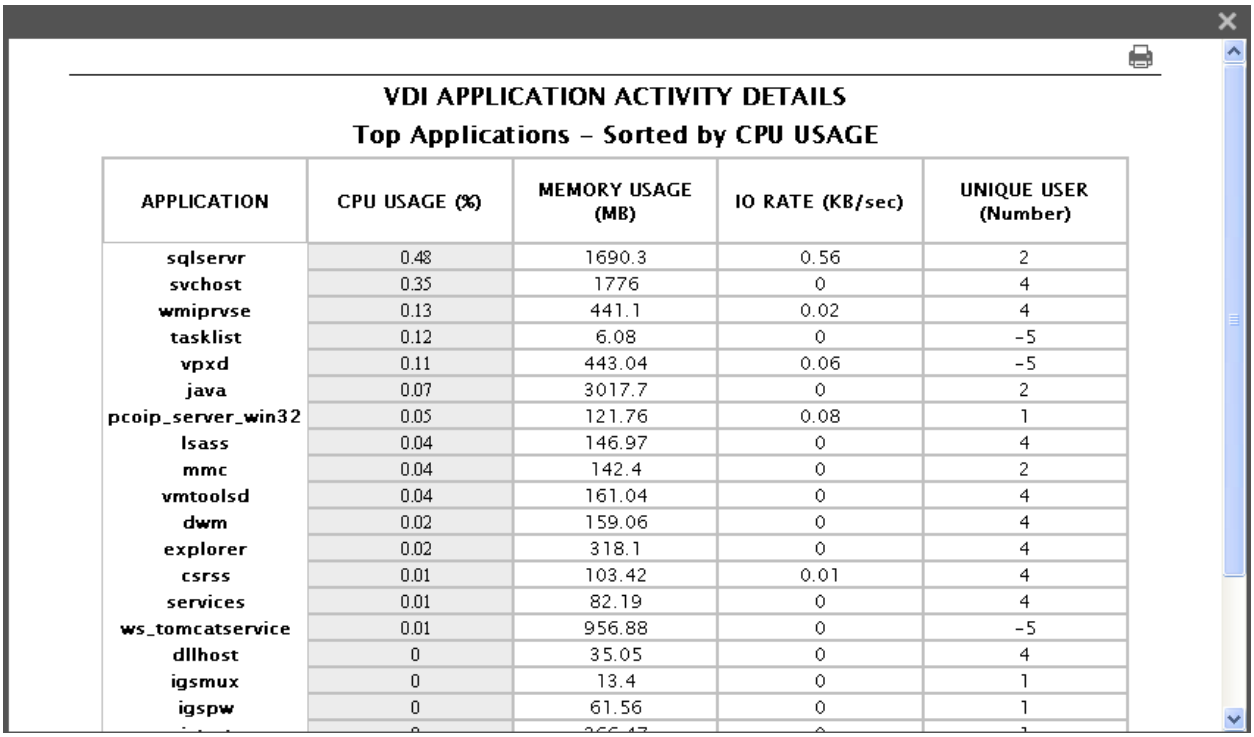


Figure 10.70: The VDI Application Activity report

13. The generated report comprises of four different graphical sections (see Figure 10.70) – each comprising a bar

chart for the Top CPU Applications, the Top Memory Applications, the Top Disk IO Applications and the Most Used Applications. The Top CPU Applications section lists the applications that are currently consuming high CPU resources. The Top Memory Applications section lists the applications that are currently consuming too much of memory resources. The Top Disk IO Applications lists the applications whose IO activity on the disk is higher and the Most Used Applications lists the number of instances of each application on the virtual desktops available in the target environment.

14. Clicking on any application of a particular bar chart will open a **VDI APPLICATION ACTIVITY DETAILS** pop up window that lists all the usage statistics for each application. The data report will be sorted in descending order of the usage statistics of the application that was clicked on originally i.e., the sorting order of the data report will be based on the section of the bar graph that was clicked by the user. The **Top Applications – Sorted by** field will display the section of the bar chart that was originally clicked. Figure 10.71 shows a data report that appears when a bar of the Top CPU Applications section of Figure 10.70 is clicked.



VDI APPLICATION ACTIVITY DETAILS

Top Applications – Sorted by CPU USAGE

APPLICATION	CPU USAGE (%)	MEMORY USAGE (MB)	IO RATE (KB/sec)	UNIQUE USER (Number)
sqlservr	0.48	1690.3	0.56	2
svchost	0.35	1776	0	4
wmiprvse	0.13	441.1	0.02	4
tasklist	0.12	6.08	0	-5
vpxd	0.11	443.04	0.06	-5
java	0.07	3017.7	0	2
pcoip_server_win32	0.05	121.76	0.08	1
lsass	0.04	146.97	0	4
mmc	0.04	142.4	0	2
vmtoolsd	0.04	161.04	0	4
dwm	0.02	159.06	0	4
explorer	0.02	318.1	0	4
csrss	0.01	103.42	0.01	4
services	0.01	82.19	0	4
ws_tomcatservice	0.01	956.88	0	-5
dllhost	0	35.05	0	4
igsmux	0	13.4	0	1
igspw	0	61.56	0	1

Figure 10.71: The VDI Application Activity Details pop up window that appears upon clicking the Top CPU Applications

10.9 Application Launch Report

Citrix administrators are often interested in auditing user activity on their XenApp farms. They would like to understand who accessed each application in the farm and for how long. The **Application Launch** report addresses this need. Using the information in this report, administrators can determine which applications are most accessed, by whom and for how long. This information can also be useful if Citrix administrators have to bill different organizations in an enterprise for usage of the different applications published in the Citrix XenApp farm.

To generate this report, do the following:

1. Select the **Application Launch** option from the **Citrix / VDI Reports** node of the **REPORTS BY FUNCTION** tree.

2. When Figure 10.72 appears, do the following:

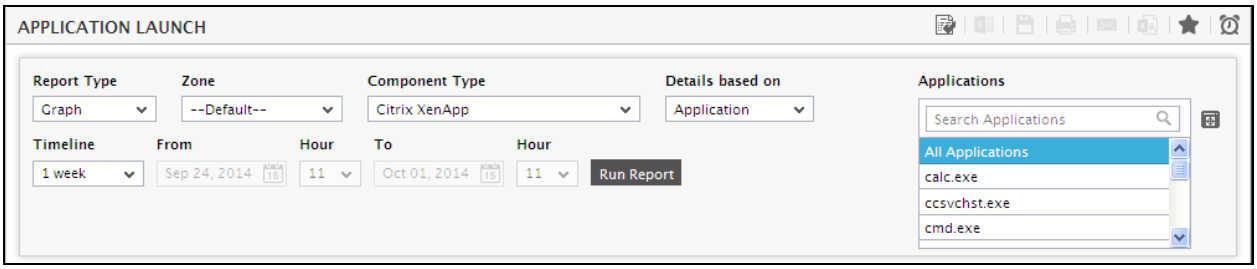


Figure 10.72: Generating the Application Launch report

3. Choose a **Report Type** (**Graph** or **Data**) for generating the report. The default **Report Type** is **Graph**. A **Graph** report graphically represents the measure data.

4. Select the **Zone** to which the servers of interest to you belong. If no zones have been configured in your environment, then all the managed servers in the environment will be automatically grouped under a zone named *Default*; in such cases therefore, select the *Default* zone.

5. Next, from the **Component Type** list, select the virtual server type for which this report is to be generated.

6. In the **Component** list box, all the components pertaining to the chosen **Component Type** will be listed. If the **Component** list consists of too many virtual servers, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Component** list. This will open the **COMPONENTS** pop up window using which you can view almost all the components in a single interface and **Select** the ones for which the report is to be generated. If there are still too many components in the list to choose from, you can narrow your search further by using the **Search Components** text box. Specify the whole/part of the component name to search for in this text box, and click the icon next to it. The **Component** list will then be populated with all component names that embed the specified search string.

7. If you wish to generate the report based on the overall access of the **Applications** in your environment, select **Application** from the **Details based on** list. For a detailed report on the application access of each user in your envornment, select the **User** option.

8. In the **Application** list box, all the applications pertaining to the chosen **Components** will be listed. If the **Applications** list consists of too many applications, then viewing all the applications and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Applications** list. This will open the **APPLICATIONS** pop up window using which you can view almost all the applications in a single interface and **Select** the ones for which the report is to be generated. If there are still too many applications in the list to choose from, you can narrow your search further by using the **Search Applications** text box. Specify the whole/part of the application name to search for in this text box, and click the icon next to it. The **Applications** list will then be populated with all application names that embed the specified search string. Select the application of your choice from this list.

9. Then, specify the **Timeline** for the report. You can either provide a fixed time line such as 1 hour, 2 days, etc., or select the **Any** option from the list to provide a **From** and **To** date/time for report generation.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Submit** button a message box will appear, prompting the user to change the **From** and **To** specification.

10. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick the criteria for generating the report. However, if you want to view and then alter these settings (if required), click on the button. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 10.73). The steps below discuss each of these settings and how they can be customized.

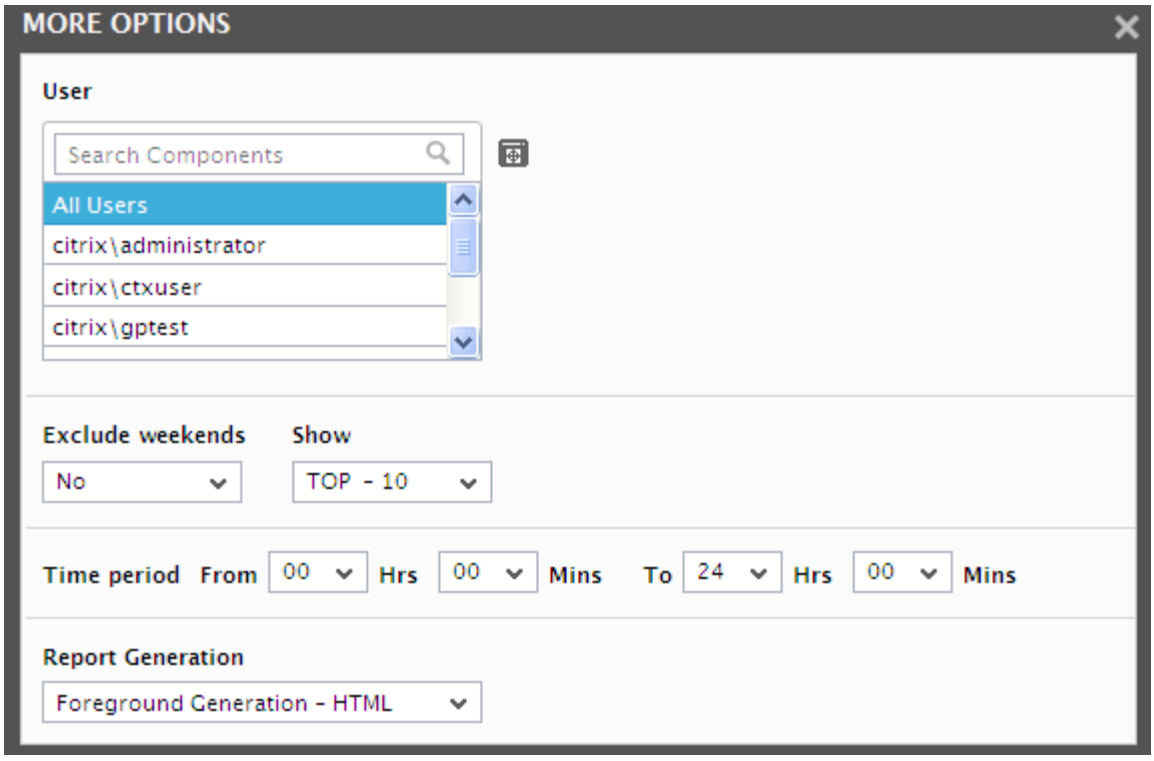


Figure 10.73: The default settings for generating the Application Launch report

11. In the **User** list box, all the users logged into the chosen **Components** will be listed. If the **User** list is too long, then viewing all the users and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **User** list. This will open the **USER** pop up window using which you can view almost all the users in a single interface and Select the ones for which the report is to be generated. If there are still too many users in the list to choose from, you can narrow your search further by using the **Search User** text box. Specify the whole/part of the user name to search for in this text box, and click the icon next to it. The **User** list will then be populated with all user names that embed the specified search string. Select the user of your choice from this list.

The **Applications** list and the **User** list will toggle between the **APPLICATION LAUNCH** page and the **MORE OPTIONS** drop down window based on the option chosen from the **Details based on** list.

12. Specify the start time and end time for report generation against the **Time period** field (see Figure 10.73).

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

13. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.

By default, the weekend constitutes *Saturday* and *Sunday*. To override this default setting, do the following:

- Edit the **eg_report.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MEASURE_GROUP]** section of the file, the **EXCLUDE_WEEKEND** parameter is set to **Saturday**,**Sunday** by default. You can modify this by setting the **EXCLUDE_WEEKEND** parameter to a comma-separated list of other days of the week - say **Friday**,**Saturday**.
- Save the file after making the required changes.

14. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and

reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

15. Finally, click the **Run Report** button to generate the report.

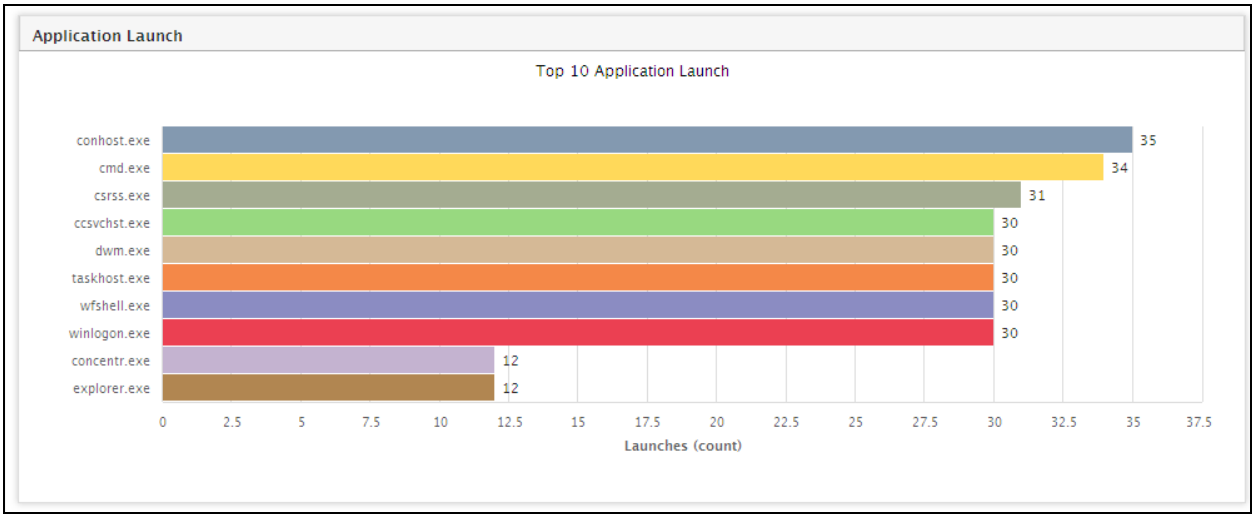


Figure 10.74: The Application Launch report

16. If you have chosen the **Graph** option from the **Report Type** list and the **Application** option from the **Details based on** list, then a bar graph displaying the Top-N applications launched in the target environment will appear (see Figure 10.74).
17. If you have chosen the **Graph** option from the **Report Type** list and the **User** option from the **Details based on**

list, then this report will be generated for the Top-N users who have launched the maximum number of applications in the target environment (see Figure 10.75).

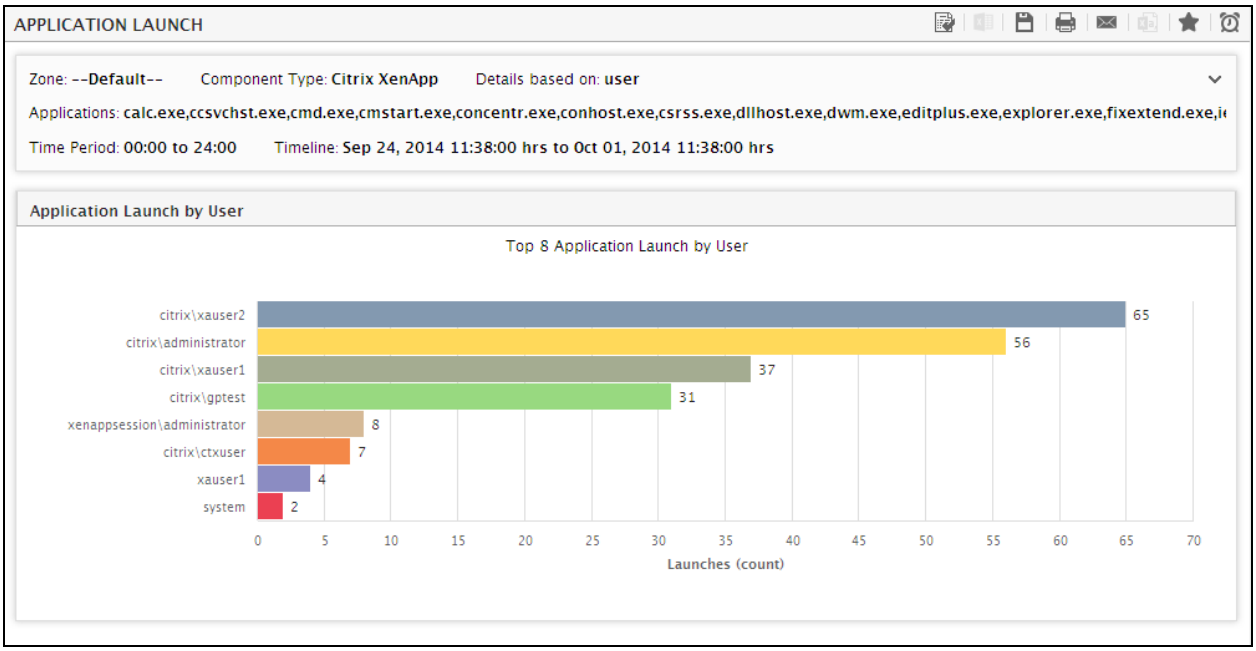


Figure 10.75: The Application Launch Report for the top users of your environment

18. If you have chosen the **Data** option from the **Report Type** list and the **Application** option from the **Details based on** list, then the report will list the number of times each **Application** was launched (see Figure 10.76).

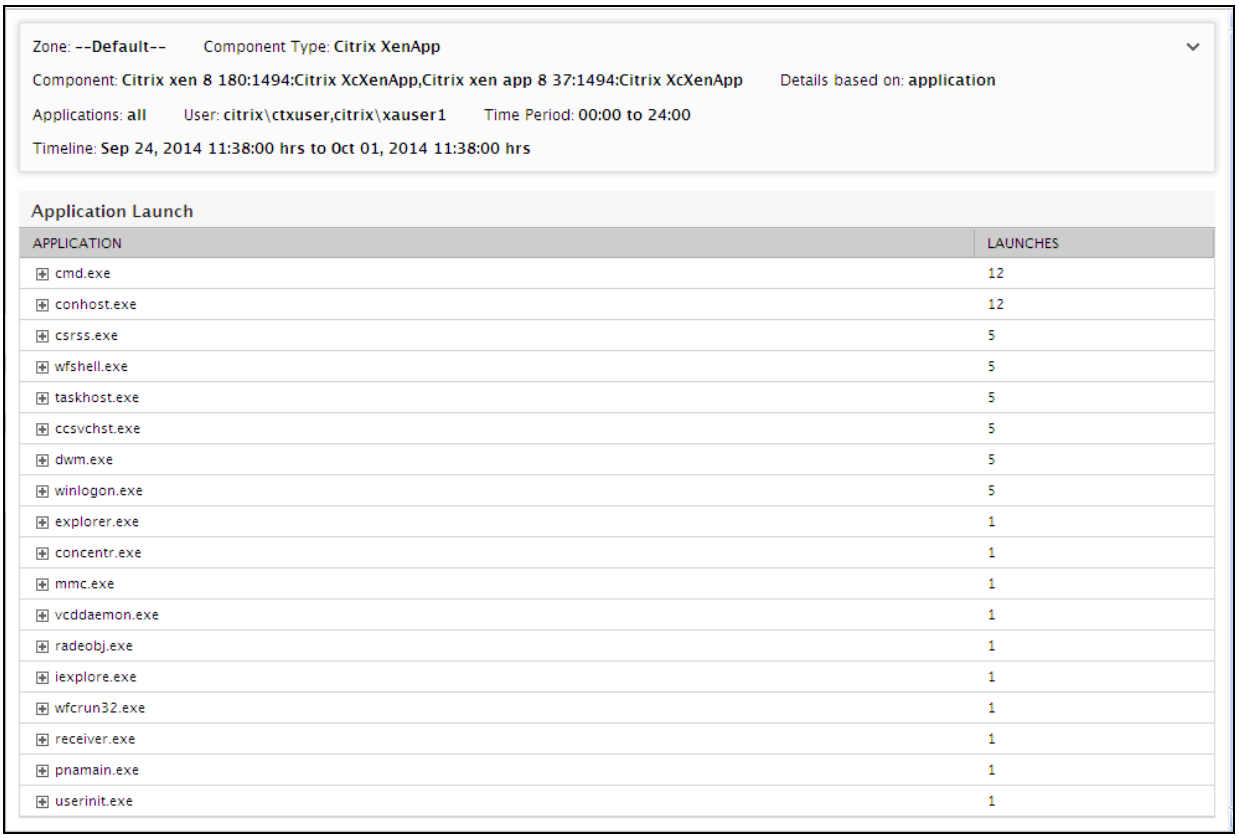
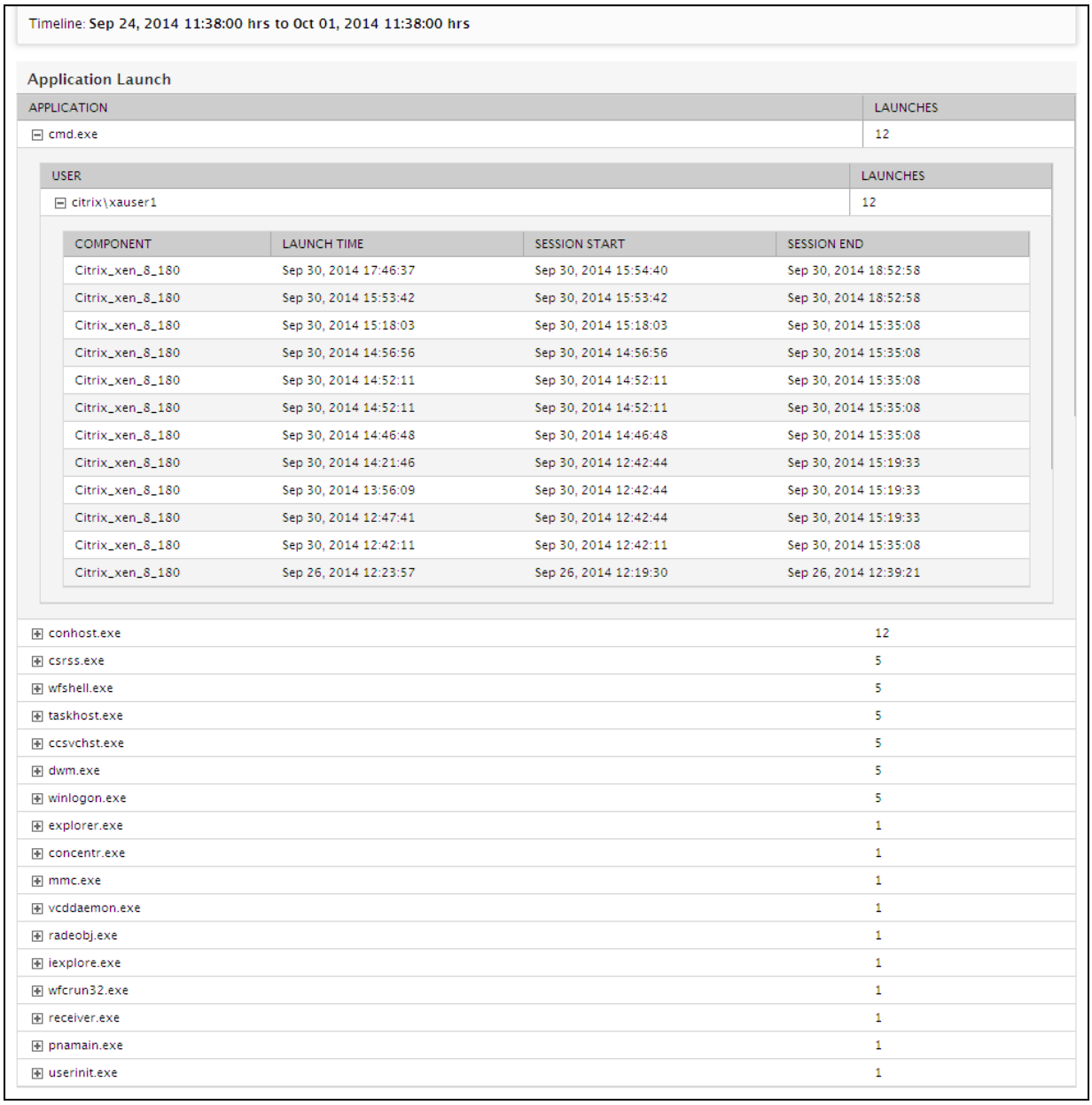


Figure 10.76: The data report when the Application option is chosen from the Details based on list

19. Further drilling down each Application will reveal Figure 10.77 using which you can understand how well each **USER** has accessed the application and how many times the application was accessed by each **User**.



Timeline: **Sep 24, 2014 11:38:00 hrs to Oct 01, 2014 11:38:00 hrs**

Application Launch

APPLICATION	LAUNCHES
⊟ cmd.exe	12

USER	LAUNCHES
⊟ citrix\xauser1	12

COMPONENT	LAUNCH TIME	SESSION START	SESSION END
Citrix_xen_8_180	Sep 30, 2014 17:46:37	Sep 30, 2014 15:54:40	Sep 30, 2014 18:52:58
Citrix_xen_8_180	Sep 30, 2014 15:53:42	Sep 30, 2014 15:53:42	Sep 30, 2014 18:52:58
Citrix_xen_8_180	Sep 30, 2014 15:18:03	Sep 30, 2014 15:18:03	Sep 30, 2014 15:35:08
Citrix_xen_8_180	Sep 30, 2014 14:56:56	Sep 30, 2014 14:56:56	Sep 30, 2014 15:35:08
Citrix_xen_8_180	Sep 30, 2014 14:52:11	Sep 30, 2014 14:52:11	Sep 30, 2014 15:35:08
Citrix_xen_8_180	Sep 30, 2014 14:52:11	Sep 30, 2014 14:52:11	Sep 30, 2014 15:35:08
Citrix_xen_8_180	Sep 30, 2014 14:46:48	Sep 30, 2014 14:46:48	Sep 30, 2014 15:35:08
Citrix_xen_8_180	Sep 30, 2014 14:21:46	Sep 30, 2014 12:42:44	Sep 30, 2014 15:19:33
Citrix_xen_8_180	Sep 30, 2014 13:56:09	Sep 30, 2014 12:42:44	Sep 30, 2014 15:19:33
Citrix_xen_8_180	Sep 30, 2014 12:47:41	Sep 30, 2014 12:42:44	Sep 30, 2014 15:19:33
Citrix_xen_8_180	Sep 30, 2014 12:42:11	Sep 30, 2014 12:42:11	Sep 30, 2014 15:35:08
Citrix_xen_8_180	Sep 26, 2014 12:23:57	Sep 26, 2014 12:19:30	Sep 26, 2014 12:39:21

⊞ conhost.exe	12
⊞ csrss.exe	5
⊞ wfshell.exe	5
⊞ taskhost.exe	5
⊞ ccsvchst.exe	5
⊞ dwm.exe	5
⊞ winlogon.exe	5
⊞ explorer.exe	1
⊞ concentr.exe	1
⊞ mmc.exe	1
⊞ vcddaemon.exe	1
⊞ radeobj.exe	1
⊞ iexplore.exe	1
⊞ wfcrun32.exe	1
⊞ receiver.exe	1
⊞ pnamain.exe	1
⊞ userinit.exe	1

Figure 10.77: Drilling down the data report

20. If you have chosen **Data** option from the **Report Type** list and the **User** option from the **Details based on** list, then the report as shown in Figure 10.78 will list the **USERS** logged into the chosen components and the total number of times he/she has accessed the applications from the chosen component.

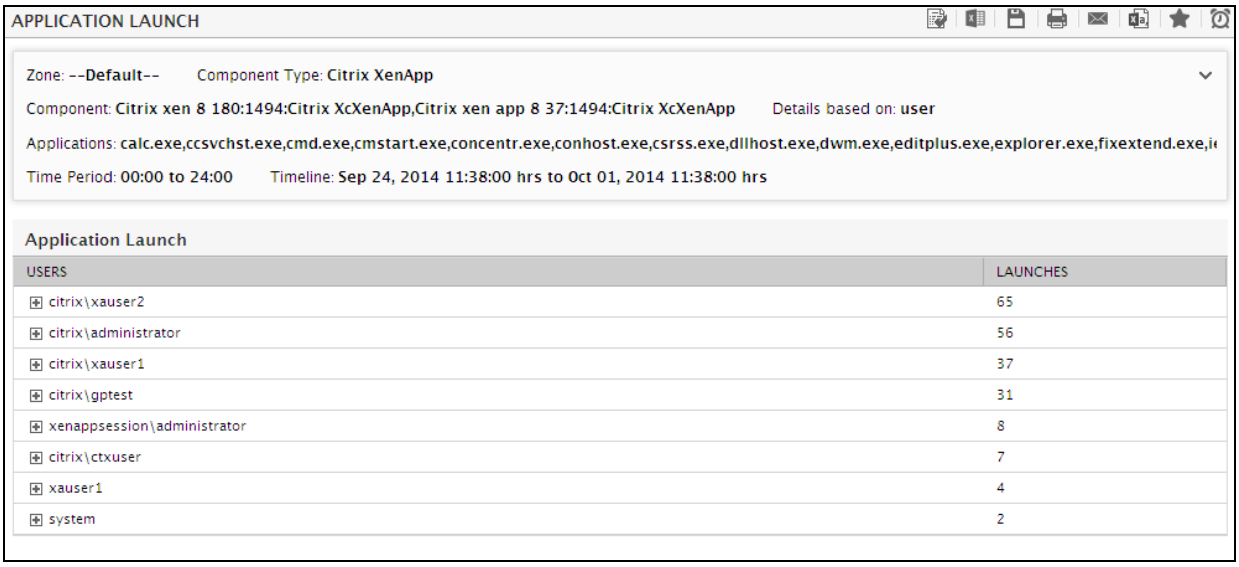
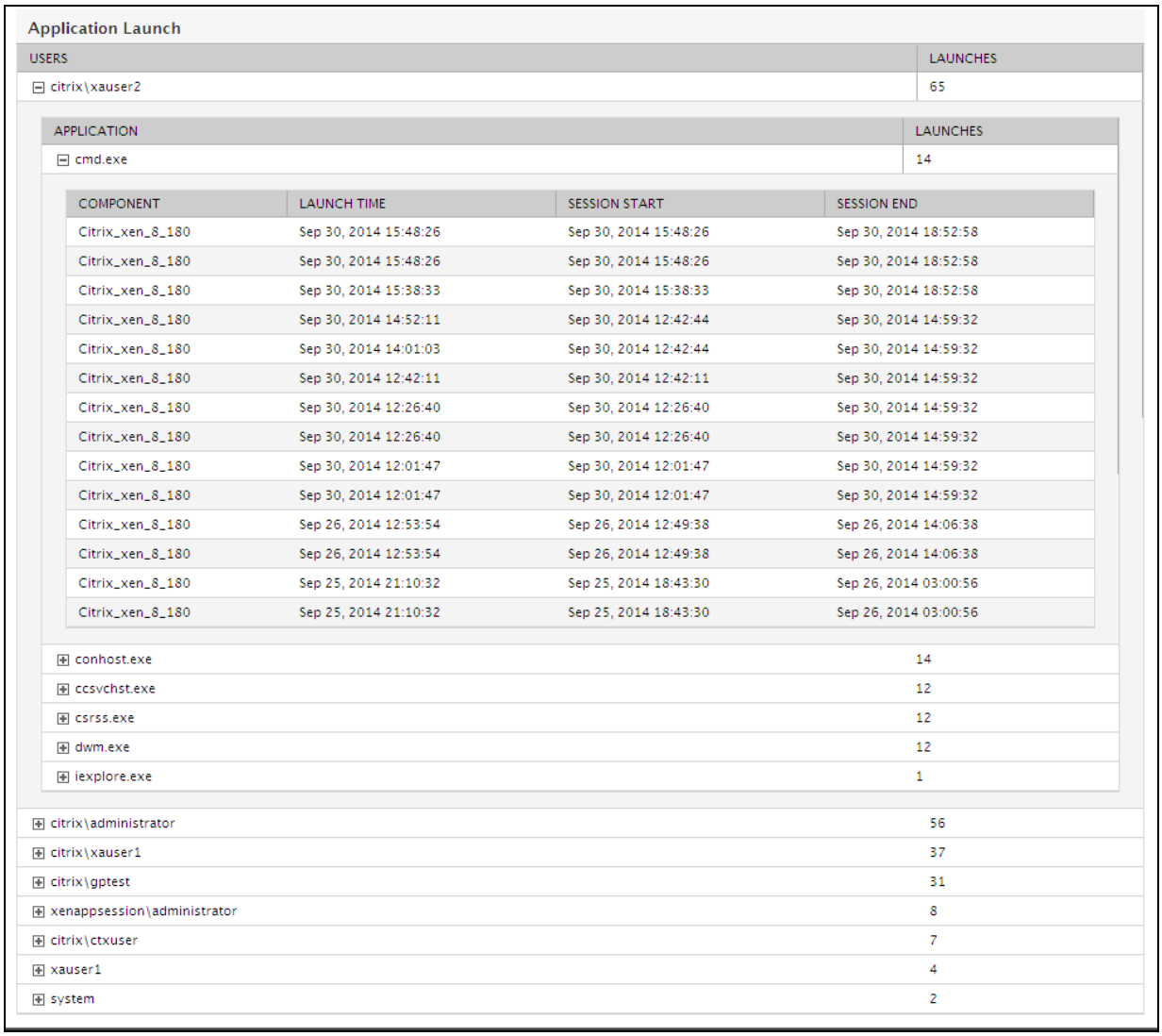


Figure 10.78: The Data Application report when User option is selected from the Details based on list

21. Further drilling down each **USER** of Figure 10.78 will list out the applications accessed by the user and the number of times each application was accessed (see Figure 10.79).



Application Launch

USERS	LAUNCHES
⊟ citrix\xauser2	65

APPLICATION	LAUNCHES
⊟ cmd.exe	14

COMPONENT	LAUNCH TIME	SESSION START	SESSION END
Citrix_xen_8_180	Sep 30, 2014 15:48:26	Sep 30, 2014 15:48:26	Sep 30, 2014 18:52:58
Citrix_xen_8_180	Sep 30, 2014 15:48:26	Sep 30, 2014 15:48:26	Sep 30, 2014 18:52:58
Citrix_xen_8_180	Sep 30, 2014 15:38:33	Sep 30, 2014 15:38:33	Sep 30, 2014 18:52:58
Citrix_xen_8_180	Sep 30, 2014 14:52:11	Sep 30, 2014 12:42:44	Sep 30, 2014 14:59:32
Citrix_xen_8_180	Sep 30, 2014 14:01:03	Sep 30, 2014 12:42:44	Sep 30, 2014 14:59:32
Citrix_xen_8_180	Sep 30, 2014 12:42:11	Sep 30, 2014 12:42:11	Sep 30, 2014 14:59:32
Citrix_xen_8_180	Sep 30, 2014 12:26:40	Sep 30, 2014 12:26:40	Sep 30, 2014 14:59:32
Citrix_xen_8_180	Sep 30, 2014 12:26:40	Sep 30, 2014 12:26:40	Sep 30, 2014 14:59:32
Citrix_xen_8_180	Sep 30, 2014 12:01:47	Sep 30, 2014 12:01:47	Sep 30, 2014 14:59:32
Citrix_xen_8_180	Sep 30, 2014 12:01:47	Sep 30, 2014 12:01:47	Sep 30, 2014 14:59:32
Citrix_xen_8_180	Sep 26, 2014 12:53:54	Sep 26, 2014 12:49:38	Sep 26, 2014 14:06:38
Citrix_xen_8_180	Sep 26, 2014 12:53:54	Sep 26, 2014 12:49:38	Sep 26, 2014 14:06:38
Citrix_xen_8_180	Sep 25, 2014 21:10:32	Sep 25, 2014 18:43:30	Sep 26, 2014 03:00:56
Citrix_xen_8_180	Sep 25, 2014 21:10:32	Sep 25, 2014 18:43:30	Sep 26, 2014 03:00:56

⊞ conhost.exe	14
⊞ ccsvchst.exe	12
⊞ csrss.exe	12
⊞ dwm.exe	12
⊞ iexplore.exe	1

⊞ citrix\administrator	56
⊞ citrix\xauser1	37
⊞ citrix\gptest	31
⊞ xenappsession\administrator	8
⊞ citrix\ctxuser	7
⊞ xauser1	4
⊞ system	2

Figure 10.79: Detailed data report for each application launch by the user

22. Clicking on each Application will further provide you with the access details i.e., you can figure out the time at which the application was accessed, the start time of the application, end time of the application, the client address, client name and the version of the client (see Figure 10.79).

11

Capacity Planning Reports

To enable administrators to easily and effectively study the historical trends in performance and accurately assess future capacity requirements, the eG Reporter offers a dedicated **Capacity Planning** reports category.

By default, the **Capacity Planning** reports are available - i.e., users are allowed to configure/generate capacity planning reports by default. To disable the generation of capacity planning reports, do the following:

- Login to the eG administrative interface and follow the menu sequence: *Settings -> Manager*
- From the **MANAGER SETTINGS** tree that appears in the left panel, click the **Capacity Planning** node.
- Set the **Enable capacity reports** flag in the right panel to **No**, and click the **Update** button.

The sections that follow will elaborately discuss each report in this category.

11.1 System Capacity Analysis Report

If a system is configured with sufficient CPU, memory, bandwidth, and disk resources, the applications executing on it seldom suffer performance degradations. Therefore, when planning the capacity of their mission-critical applications/business services, administrators need to historically analyze how the systems hosting these applications/supporting these business services used the physical resources that were at their disposal, identify usage bottlenecks, and if required, recommend changes in system size as part of their capacity plans, so that unpleasant application crashes or service outages can be averted in the future. Such a detailed appraisal of system-level resource usage can be performed using the **Systems Capacity Planning Report**.

For each critical system resource that is monitored (CPU, memory, disk space, disk activity, and bandwidth), this report computes and displays how that resource was utilized on an average (*Avg*) during a given timeline and also computes the *95th percentile* value of the corresponding usage measure. In addition, by comparing the *95 percentile* value with user-configured thresholds for the same, the report promptly detects and highlights resource usage bottlenecks and the severity of these bottlenecks.

This report can be generated for a particular **Component**, for the components engaged in the delivery of a **Service**, or for the components that are part of a **Segment**. Each of these report types have been discussed in detail in the sections that follow.

System Capacity Analysis Report – Service

If your mission-critical services often fail owing to resource constraints, you may want to historically analyze the resource usage of the systems hosting those applications that are engaged in the delivery of these services to identify resource usage bottlenecks (if any). The **System Capacity Analysis** Report for a particular **Service** aids this usage analysis. For a chosen service, this report will help you understand how each system supporting that service has been utilizing the physical resources available to it, determine whether usage increased sporadically or consistently, and identify those systems that frequently ran out of resources, causing the service quality to dip that very often. This way, you can quickly point to the systems that are candidates for resizing and those resources on the system that are limiting its performance. These systems and resources will hence be the focal point of future capacity plans.

To generate a **System Capacity Analysis** report for a chosen service in your environment, do the following:

1. Login to eG Reporter.
2. Follow the menu sequence: *REPORTS BY FUNCTION -> Capacity Planning -> System Capacity Analysis*.
3. Figure 11.1 will then appear.

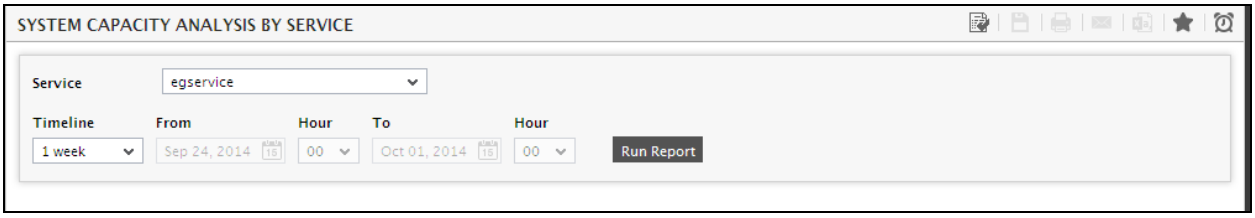


Figure 11.1: The System Capacity Analysis report for a Service

4. Select a service for which this report is to be generated from the **Service** list.
5. Provide a **Timeline** for the report.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings

are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 11.2). The steps below discuss each of these settings and how they can be customized.

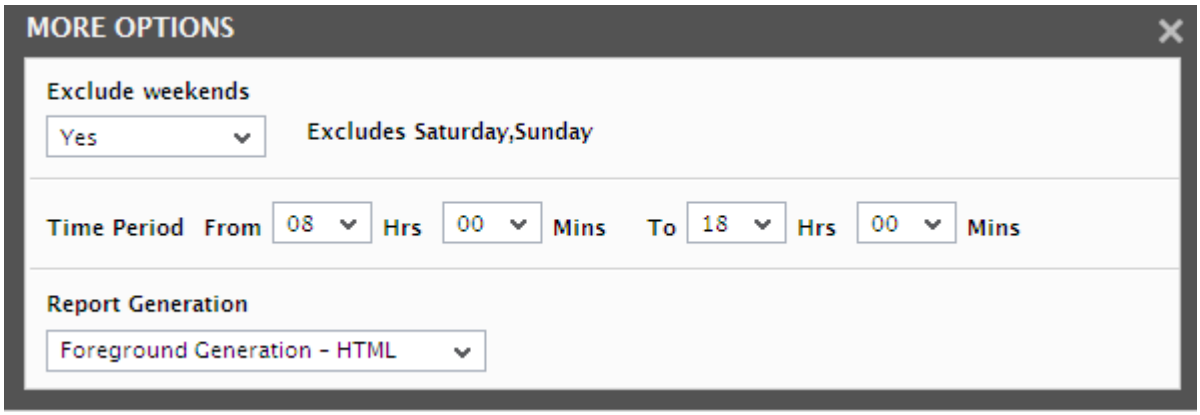


Figure 11.2: The default settings for generating a System Capacity Analysis report by service

7. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.
8. Next, specify the start time and end time for report generation against the **Time period** field.

Note

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

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9. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

10. Finally, click the **Run Report** button to generate the report.
11. If the **Foreground Generation - HTML** option is chosen from the **Report Generation** list, then, Figure 11.3 will appear as soon as the **Run Report** button is clicked.

System Capacity Report Service - customer.eginnovations.com

CPU Utilization		Physical Memory Utilized		Disk Space Usage			Disk Activ	
%		%		%				
95 Th %Title	Avg	95 Th %Title	Avg	Descriptor	5 Th %Title	Avg	Descriptor	95
System : customer.eginnovations.com								
71.99	36.31	60.66	45.19	C	65.45	65.82	Disk0 C:	
-	-	-	-	-	-	-	LogicalDisk C:	
71.99	36.31	60.66	45.19	C	65.45	65.82	Disk0 C:	
-	-	-	-	-	-	-	LogicalDisk C:	
71.99	36.31	60.66	45.19	C	65.45	65.82	Disk0 C:	
-	-	-	-	-	-	-	LogicalDisk C:	

MEASUREMENTS	MAJOR / POTENTIAL ISSUE	CRITICAL ALREADY AN ISSUE
CPU utilization	> 85 %	> 99 %
Physical memory utilized	> 80 %	> 95 %
Disk Space Usage	> 85 %	> 95 %
Disk Activity - Disk busy	> 80 %	> 95 %
Server Network Bandwidth usage	> 75 %	> 90 %

Figure 11.3: The System Capacity Planning Report - Service

12. For each service chosen, this report will display the systems that are associated with that service. Against each system, the report will display the *Avg* and the *95th percentile* value of CPU usage, memory usage, bandwidth usage, disk space usage, and the level of disk activity of that system during the given timeline. hosting the chosen components for each recorded by the measure over a period of time, and also the **Percentile** value associated with the measure. The *Avg* value and the **Percentile** value will be reported for each descriptor of the application/system. Using this report, you can easily understand the variations in the behavior of the measure

over time, and accordingly plan the future capacity of the application/system.

13. The report displays the *95th percentile* value and the *Avg* of CPU usage, memory usage, bandwidth usage, disk space usage, and the level of disk activity on the systems hosting the chosen components. The pre-configured thresholds governing the *95th percentile* value are indicated in the section at the bottom of the report. These thresholds can be configured using the **Capacity Planning System Report Settings** section that can be accessed through the *Settings-> Reporter-> Capacity Planning Reports -> Configure System Reports* menu sequence of the **Admin** module. As you can see, the threshold limits set for each measure has been indicated in the report using which you can analyze the abnormalities easily. This way, the report helps you recognize situations in the past when resource usage touched unacceptable limits, analyze whether a change in capacity can help prevent such excesses, and accordingly plan the future capacity of your critical systems.
14. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

System Capacity Analysis Report – Segment

By enabling you to historically analyze the resource usage of systems that are part of a chosen segment, the **System Capacity Analysis - Segment** report helps you focus on the usage patterns exhibited by a select group of systems that are critical to the IT infrastructure being monitored.

To generate a **System Capacity Analysis** report for a chosen segment in your environment, do the following:

1. Login to eG Reporter.
2. Follow the menu sequence: *REPORTS BY FUNCTION - >Capacity Planning -> System Capacity Analysis -> Segment*.
3. Figure 11.4 will then appear.

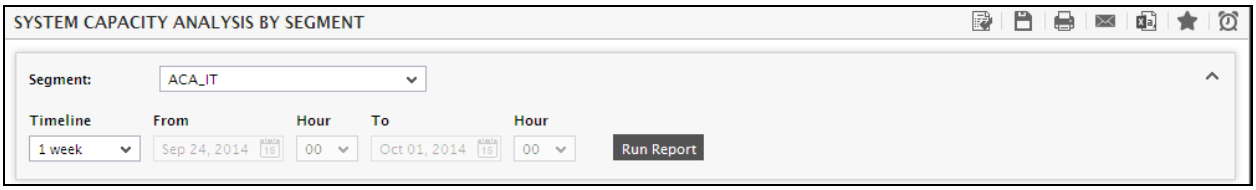


Figure 11.4: The System Capacity Planning Report for a Segment

4. Select a segment for which this report is to be generated from the **Segment** list.
5. Provide a **Timeline** for the report.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

6. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Segment**. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 11.5). The steps below discuss each of these settings and how they can be customized.

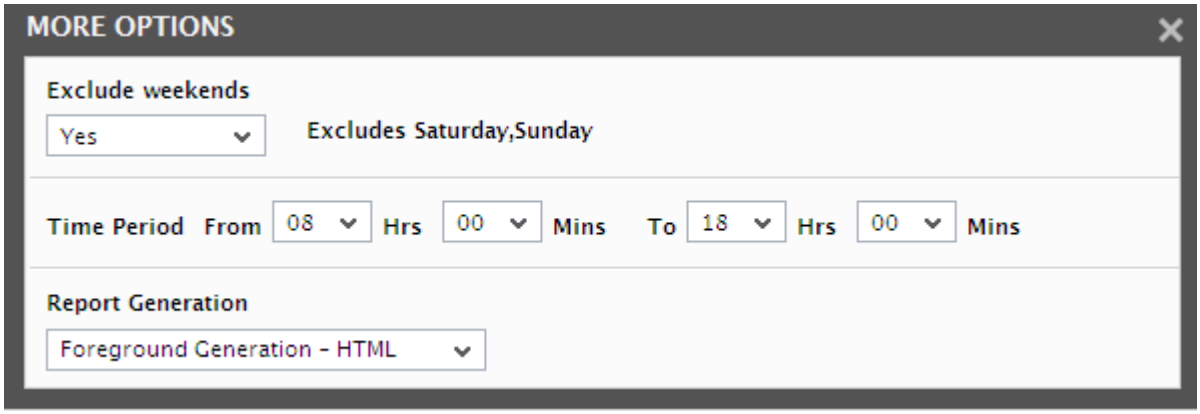


Figure 11.5: The default settings for generating a System Capacity Analysis report for a chosen segment

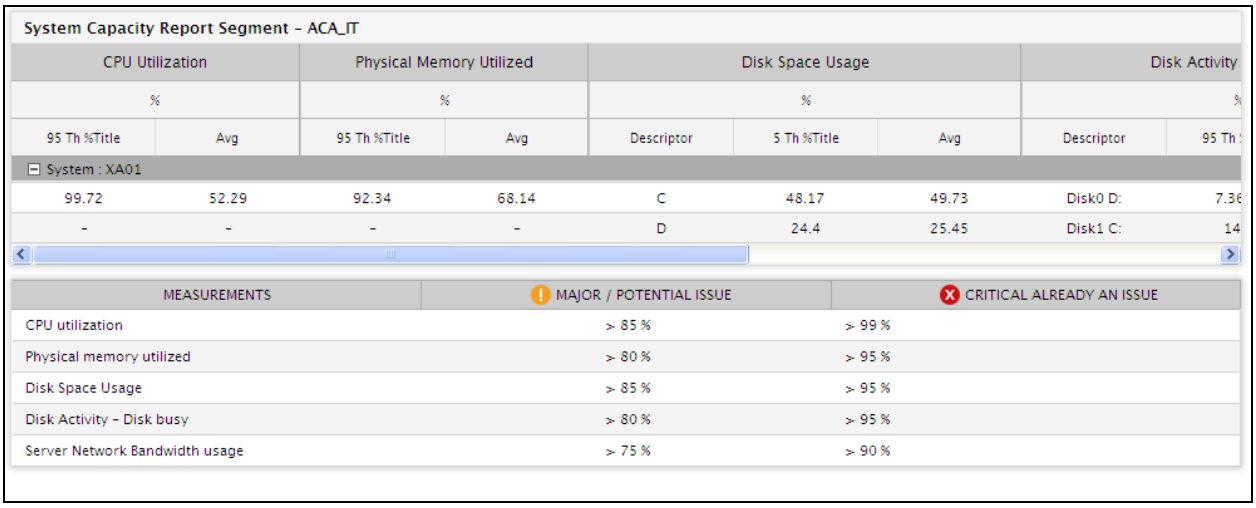
7. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.
8. Next, specify the start time and end time for report generation against the **Time Period** field.

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

9. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

10. Finally, click the **Run Report** button to generate the report.
11. If the **Foreground Generation - HTML** option is chosen from the **Report Generation** list, then, Figure 11.6 will appear as soon as the **Run Report** button is clicked.



System Capacity Report Segment - ACA_IT

CPU Utilization		Physical Memory Utilized		Disk Space Usage			Disk Activity	
%		%		%			%	
95 Th %Title	Avg	95 Th %Title	Avg	Descriptor	5 Th %Title	Avg	Descriptor	95 Th
System : XA01								
99.72	52.29	92.34	68.14	C	48.17	49.73	Disk0 D:	7.36
-	-	-	-	D	24.4	25.45	Disk1 C:	14

MEASUREMENTS	MAJOR / POTENTIAL ISSUE	CRITICAL ALREADY AN ISSUE
CPU utilization	> 85 %	> 99 %
Physical memory utilized	> 80 %	> 95 %
Disk Space Usage	> 85 %	> 95 %
Disk Activity - Disk busy	> 80 %	> 95 %
Server Network Bandwidth usage	> 75 %	> 90 %

Figure 11.6: The System Capacity Analysis Report - Segment

12. In the report of Figure 11.6, you can see that for all systems of each segment chosen earlier, this report will display the applications/systems that are associated with the segment, the *Avg* value recorded by the measure over a period of time, and also the **Percentile** value associated with the measure. The *Avg* value and the **Percentile** value will be reported for each descriptor of the application/system. Using this report, you can easily understand the variations in the behavior of the measure over time, and accordingly plan the future capacity of the application/system.

13. The 95th Percentile values that are generated in the report will be highlighted with different colors to indicate that the major/critical thresholds for this value have been violated. By default, the major/critical thresholds for the 95th percentile value reported for the measures are configurable. The thresholds can be configured as per your choice using the **Capacity Planning System Report Settings** section that can be accessed through the *Settings-> Reporter-> Capacity Planning Reports -> Configure System Reports* menu sequence of the **Admin** module.

14. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the PDF icon in that page.

System Capacity Report – Component

By default, this **System Capacity Analysis** report helps you in analyzing the capacity of a chosen component for a particular Component type that is managed in your environment.

To generate a **System Capacity Analysis** report for a chosen component in your environment, do the following:

1. Login to eG Reporter.
2. Follow the menu sequence: *REPORTS BY FUNCTION -> Capacity Planning -> System Capacity Analysis -> By Component*.

3. Figure 11.7 will then appear.

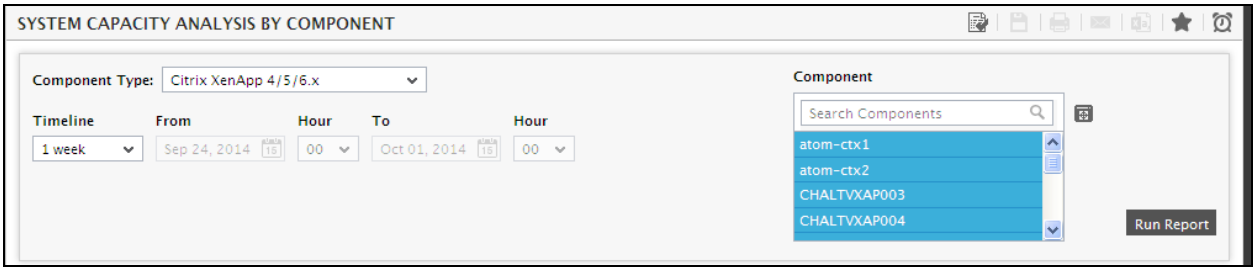


Figure 11.7: The System Capacity Analysis report for a chosen component of a component type

4. Select a component type from the **Component Type** list.
5. The **Component** list will now be populated with all the components that are managed in your environment for the chosen component type. If the **Components** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Components** list. A **COMPONENTS** pop up window will then appear using which you can view almost all the components in a single interface and **Select** the ones to be included in the System Capacity Analysis report.
6. Provide a **Timeline** for the report.

Note

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

7. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick a **Measure**. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 11.8). The steps below discuss each of these settings and how they can be customized.

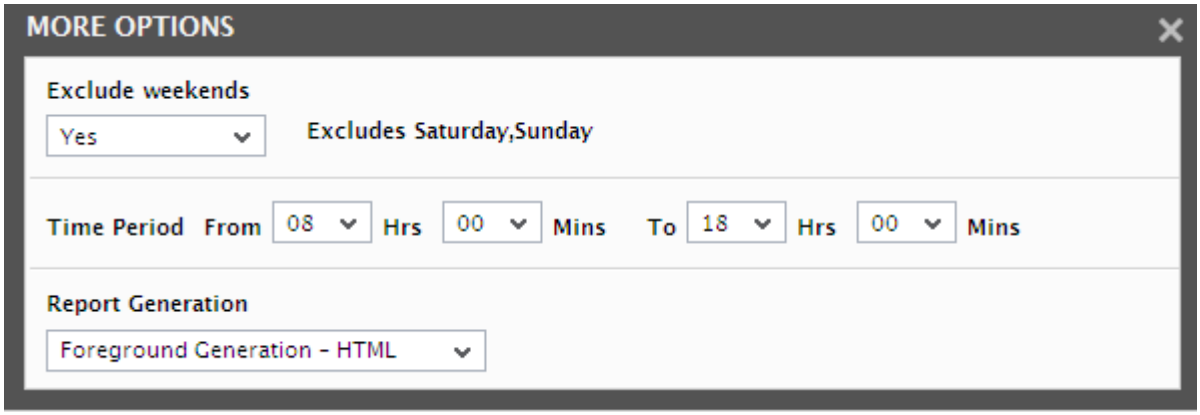


Figure 11.8: The default settings for generating a System Capacity Analysis report for a chosen segment

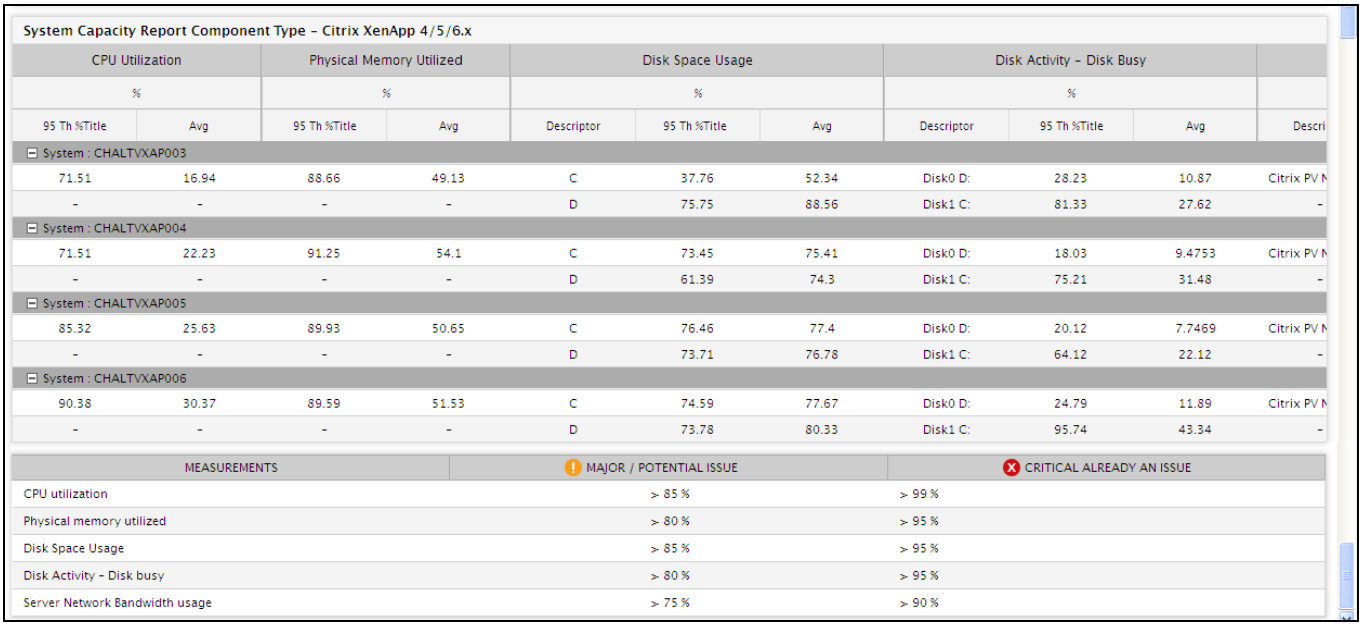
8. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set to **Yes**. If not, select **No**.
9. Next, specify the start time and end time for report generation against the **Time period** field.

The default **Time period** to be displayed here can be configured using the **CONSOLIDATED REPORTS** page in the eG administrative interface; to access this page, follow the menu sequence: Settings -> Reporter -> Consolidated Reports. For more details regarding this page, refer to Section 3.4 of this manual.

10. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

11. Finally, click the **Run Report** button to generate the report.
12. If the **Foreground Generation - HTML** option is chosen from the **Report Generation** list, then, Figure 11.9 will appear as soon as the **Run Report** button is clicked.



System Capacity Report Component Type – Citrix XenApp 4/5/6.x

CPU Utilization		Physical Memory Utilized		Disk Space Usage			Disk Activity – Disk Busy			
%		%		%			%			
95 Th %Title	Avg	95 Th %Title	Avg	Descriptor	95 Th %Title	Avg	Descriptor	95 Th %Title	Avg	Descri
System : CHALTVXAP003										
71.51	16.94	88.66	49.13	C	37.76	52.34	Disk0 D:	28.23	10.87	Citrix PV N
-	-	-	-	D	75.75	88.56	Disk1 C:	81.33	27.62	-
System : CHALTVXAP004										
71.51	22.23	91.25	54.1	C	73.45	75.41	Disk0 D:	18.03	9.4753	Citrix PV N
-	-	-	-	D	61.39	74.3	Disk1 C:	75.21	31.48	-
System : CHALTVXAP005										
85.32	25.63	89.93	50.65	C	76.46	77.4	Disk0 D:	20.12	7.7469	Citrix PV N
-	-	-	-	D	73.71	76.78	Disk1 C:	64.12	22.12	-
System : CHALTVXAP006										
90.38	30.37	89.59	51.53	C	74.59	77.67	Disk0 D:	24.79	11.89	Citrix PV N
-	-	-	-	D	73.78	80.33	Disk1 C:	95.74	43.34	-

MEASUREMENTS	MAJOR / POTENTIAL ISSUE	CRITICAL ALREADY AN ISSUE
CPU utilization	> 85 %	> 99 %
Physical memory utilized	> 80 %	> 95 %
Disk Space Usage	> 85 %	> 95 %
Disk Activity - Disk busy	> 80 %	> 95 %
Server Network Bandwidth usage	> 75 %	> 90 %

Figure 11.9: The System Capacity Analysis Report - Component

13. For each Component type chosen earlier, this report will display the components that are of the same chosen component type, the *Avg* value recorded by the measure over a period of time, and also the **Percentile** value associated with the measure. The *Avg* value and the **Percentile** value will be reported for each descriptor of the application/system. Using this report, you can easily understand the variations in the behavior of the measure over time, and accordingly plan the future capacity of the application/system.

14. The 95th Percentile values that are generated in the report will be highlighted with different colors to indicate that the major/critical thresholds for this value have been violated. By default, the major/critical thresholds for the 95th percentile value reported for the measures are configurable. The thresholds can be configured as per your choice using the **Capacity Planning System Report Settings** section that can be accessed through the *Settings-> Reporter-> Capacity Planning Reports -> Configure System Reports* menu sequence of the **Admin** module

15. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

11.2 Custom Capacity Analysis Report

The eG Reporter module offers a wide variety of reports using which one can cross-correlate and time-correlate across thousands of metrics collected from across the environment. Reports generated using trend data particularly can accurately reveal the past load and performance trends, using which future trends in load and usage can be determined. The *Avg, Sum, Max,* and *Min* values computed by the eG Enterprise system on an hourly basis as part of its trend computations, help a great deal in determining potential sizing inadequacies and planning the future capacity of the environment. However, from a strict capacity planning perspective, **Percentile** values are deemed as more effective pointers to capacity inadequacies than the avg, sum, max, and min values. To enable users to effectively plan the capacity of their environment, eG Enterprise allows administrators to configure the trend manager to compute percentile values, and then generate a **Custom** report using the computed percentiles.

To generate a **Custom** report, do the following:

1. Login to eG Reporter.
2. Select the **Custom Capacity Analysis** option from the **Capacity Planning** node of the **REPORTS BY FUNCTION** tree.
3. Figure 11.10 will then appear where you need to configure the test for which the custom capacity planning report needs to be generated.

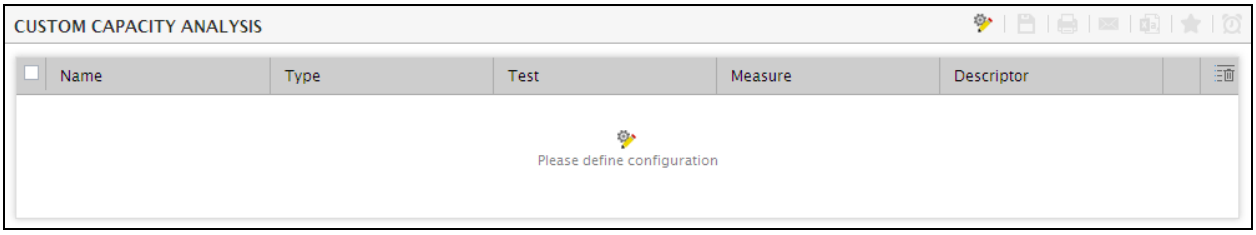


Figure 11.10: The Custom Capacity Analysis report before configuration

4. Clicking on the **Please define configuration** link in Figure 11.10 will lead you to Figure 11.11 using which you can configure the tests for which the Custom Capacity Analysis report needs to be generated.

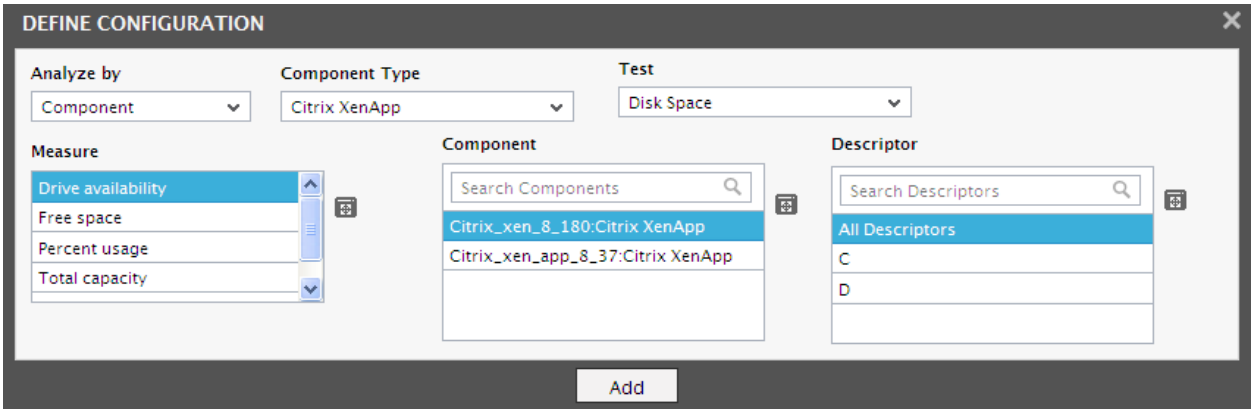


Figure 11.11: Defining the tests for generating the Custom Capacity Analysis reports

5. Pick a criterion for analysis from the **Analyze by** list. Using this report, you can analyze the capacity of independent components and those that are part of a segment, service, or a zone. The options provided by the **Analyze by** list box are discussed hereunder:
   - **Component**: Select this option to choose the component(s) from across all the managed components in the environment.
   - **Service**: Select this option if the components for which a report is to be generated are involved in the delivery of a business service. Then, select a **Service**.
   - **Segment**: Choose this option if the components for which this report is to be generated are part of a segment. Then, pick a **Segment** for analysis.
   - **Zone**: Pick this option for a capacity planning report for components that are part of a zone. Then, choose a **Zone**. Also, indicate whether the components within the sub-zones of the chosen zone are also to be to be considered for report generation, by selecting an option from the **Include subzone** list.
6. Based on the criterion chosen from the **Analyze by** list, the **Component Type** list will be populated. Select a component type for which the report is to be generated.
7. Of the tests associated with the chosen component-type, select the **Test** to which this report should pertain.
8. From the **Measure** list, choose the measures for which this report is to be generated. If too many measures are listed here, then viewing all the measures and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Measure** list. The **MEASURES** pop up window will then appear using which you can view almost all the measures in a single interface and select the ones for which the report is to be generated.
9. All components of the chosen type spread across the environment, or which are within a chosen segment / service / zone (based on the **Analyze by** selection) will be listed in the **Component** list. Pick the components for which the report is to be generated. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Component** list. The **COMPONENT** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
10. Select the descriptors of interest from the **Descriptor** list; to include all descriptors in the analysis, select the *All Descriptors* option.

Note

The **Descriptor** list will be populated with descriptors only if a single component is chosen from the **Component** list. If multiple components are chosen, no descriptors will be displayed here for selection.

If the **Descriptor** list consists of too many descriptors, then viewing all the descriptors and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the icon next to the **Descriptor** list. The **DESCRIPTOR** pop up window will then appear using which you can view almost all the descriptors in a single interface and select the ones for which the report is to be generated.

11. Then, click the **Add** button in Figure 11.12. The specification that you built will be added as shown in Figure 11.12. Similarly, multiple specifications can be added. To remove a specification, simply select the check box corresponding to that row in the box, and click the button. To remove all specifications listed in the box, just select the check box before the column head **Name** so that, all listed specifications are marked for deletion; then, click the icon.

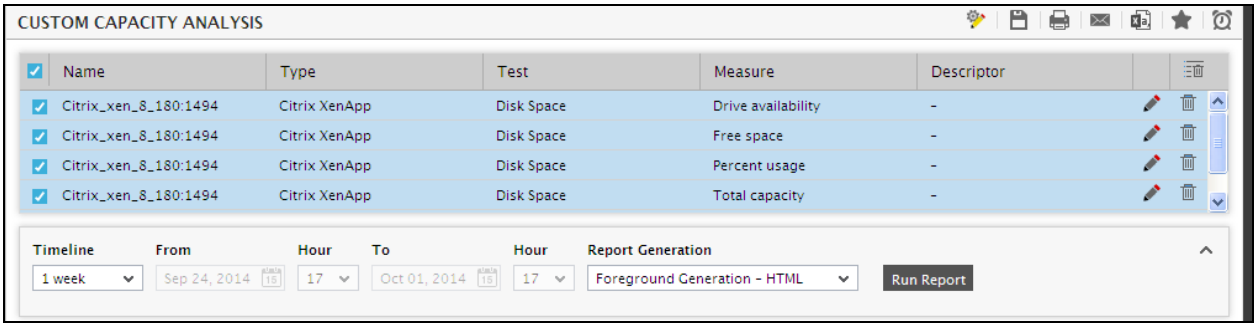


Figure 11.12: The Custom Capacity Analysis report

12. If your specification includes one or more descriptors, you can modify your specification by clicking the button. Figure 11.13 will then appear.

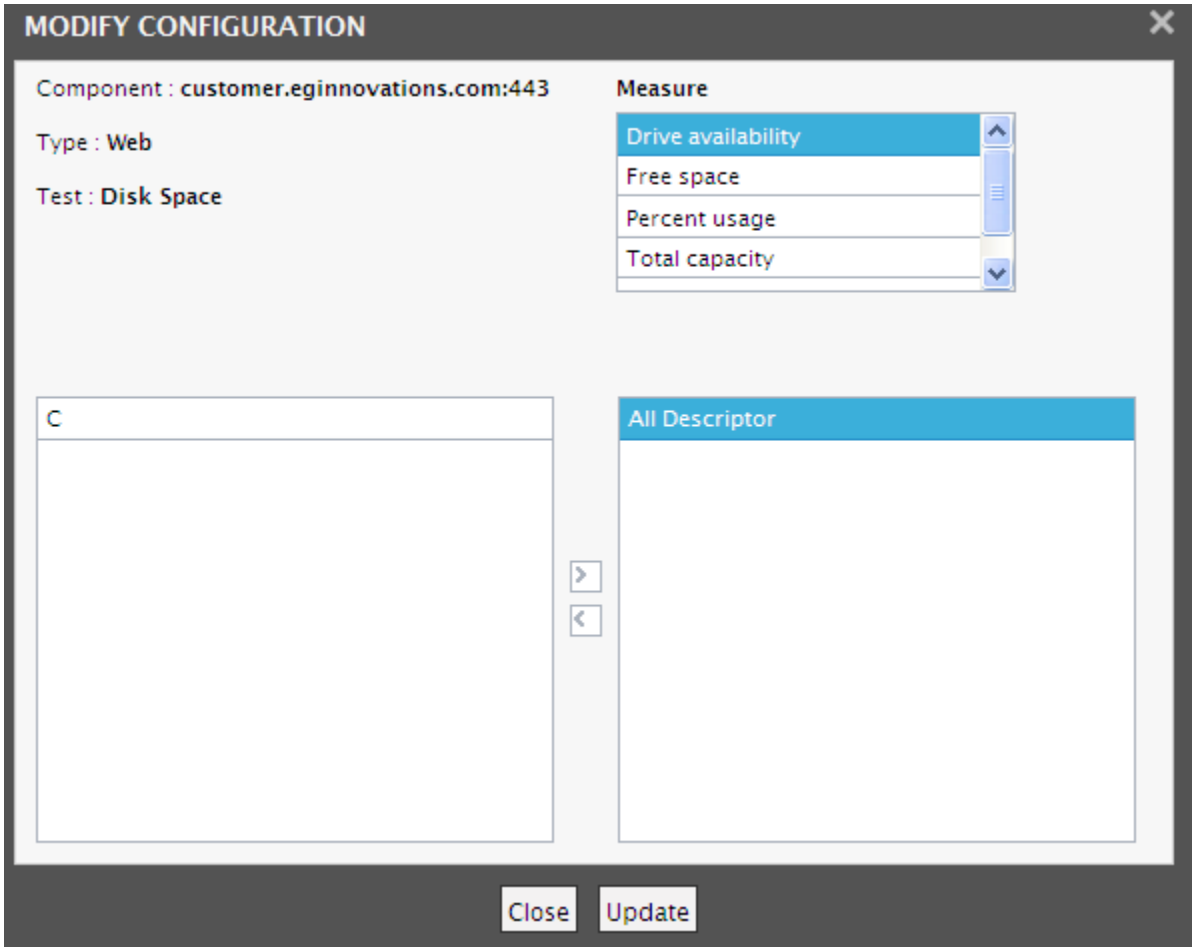


Figure 11.13: Modifying descriptors

13. To add more descriptors, select one/more options from the **Excluded Descriptors** list in Figure 11.13 and click the **>** button. To remove descriptors, select one/more options from the **Included Descriptors** list and click the **<** button. Finally, click the **Update** button.

14. Also, the **Measure** list in Figure 11.13 will display all the measures for the chosen test, and will indicate which ones have been chosen for report generation. If you want to exclude one/more measures, simply deselect the measures from the **Measure** list, and finally, click the **Update** button.

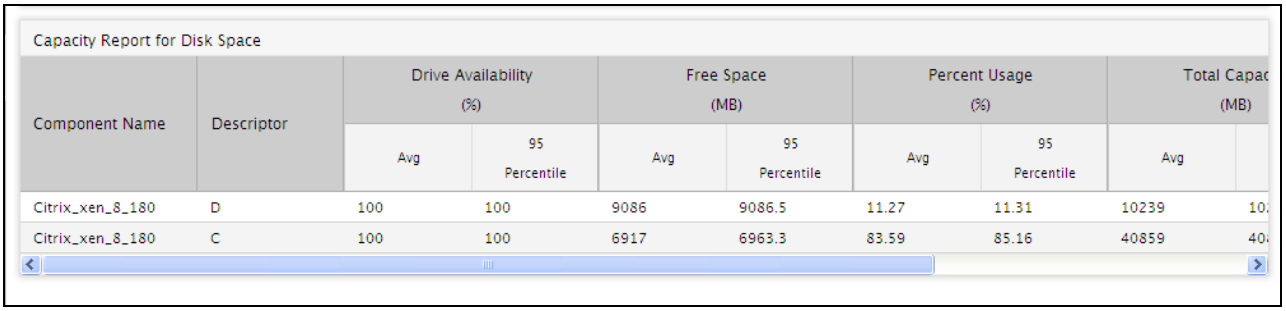
15. This will lead you back to the report page.

16. Provide a **Timeline** for the report (see Figure 11.12).

17. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

18. Finally, click the **Run Report** button to generate the report.
19. If the **Foreground Generation - HTML** option is chosen from the **Report Generation** list, then, Figure 11.14 will appear as soon as the **Run Report** button is clicked.



Capacity Report for Disk Space

Component Name	Descriptor	Drive Availability (%)		Free Space (MB)		Percent Usage (%)		Total Capac (MB)	
		Avg	95 Percentile	Avg	95 Percentile	Avg	95 Percentile	Avg	
Citrix_xen_8_180	D	100	100	9086	9086.5	11.27	11.31	10239	10
Citrix_xen_8_180	C	100	100	6917	6963.3	83.59	85.16	40859	40

Figure 11.14: The Capacity Planning Report

20. For each component, measure, and descriptor chosen earlier, this report will display the *Avg* value recorded by the chosen measure over a period of time, as also the **Percentile** value associated with the measure. Using this report, you can easily understand the variations in the behavior of the measure over time, and accordingly plan the future capacity of the application/system.
21. Clicking on an *Avg* or a *Percentile* value that corresponds to a measure will lead you to Figure 11.15 If the **Timeline** of the original reports spans a day, then Figure 11.15 will provide an hourly breakup of the Percentile computations for the corresponding measure-descriptor combination so that, you can isolate the exact hour at which the resource usage was abnormally high. Likewise, if the **Timeline** of the report spans days, then Figure 11.15 will provide a day-wise breakup of the Percentile computations. In the same way, a **Timeline** specification that runs across months will result in a Figure 11.15 that will provide a monthly breakup of the Percentile calculations.

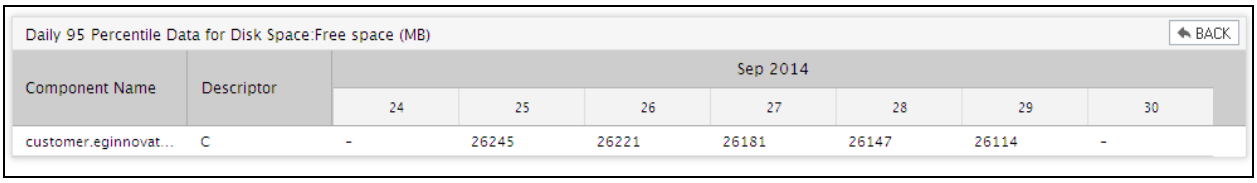


Figure 11.15: Day-wise percentile break up

22. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the PDF icon in that page.

11.3 Prediction Analysis Report

Prediction Reports analyze the history of metrics and provide a prediction for the future. A **Prediction Report** applies built-in prediction mechanisms and sophisticated forecasting techniques on historical data for a metric to automatically compute how that metric is likely to change in the future. The result is a graph where historical data and future predictions are both plotted together.

With the help of **Prediction Reports**, administrators can:

- Clearly understand how load was and how it will change in the future;
- Accurately determine when in the future the current resource capacity of the targets may get exhausted or may be inadequate; this information will enable you to re-evaluate your capacity plans and make sizing changes, so as to provide for such contingencies.
- Isolate the exact times in the future when the overall performance of a target will dip, and also figure out how poorly the targets may perform during such times; potential threats to good health are thus revealed, and efforts to avert them can be initiated early.

The reliability of the predictions revealed by the **Prediction Reports** depends upon the historical data that is used as the basis for the predictions. If the historical data under consideration exhibits many variations and is highly deviating with frequent surges and dips, the prediction reports will consider only the average of the past performance and accordingly forecast future performance. In such predictions therefore, you may not be able to find distinct high or low performance points.

To generate the **Prediction Analysis Report**, do the following:

1. Select the **Prediction Analysis** option from the **Capacity Planning** node of the **REPORTS BY FUNCTION** tree in eG Reporter.

By default, the **Capacity Planning** option will not be available in the eG Reporter menu - i.e., users are not allowed to configure/generate capacity planning reports by default. To enable the generation of capacity planning and prediction reports, do the following:

Note

- Edit the **eg_services.ini** file in the **<EG_INSTALL_DIR>\manager\config** directory.
- In the **[MISC_ARGS]** section of the file, you will find a **CapacityReportEnabled** flag, which is set to **false** by default. Change this flag to **true**.
- Save the file.

2. Figure 11.16 will then appear.

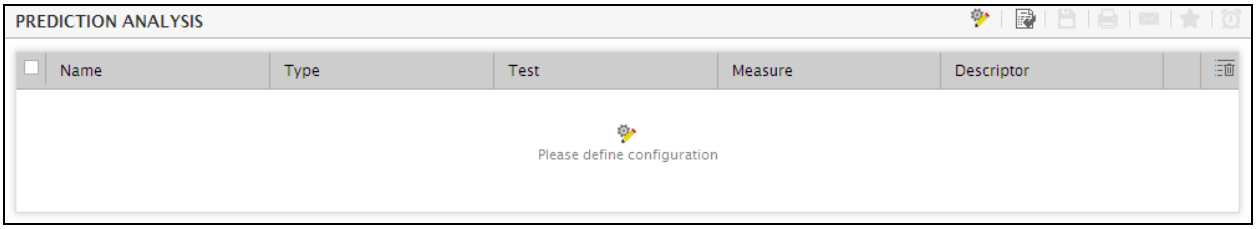


Figure 11.16: The Prediction Analysis report

3. Click on the Please define configuration link in Figure 11.16 to choose the measures for generating the Prediction Analysis reports. Figure 11.17 will then appear.

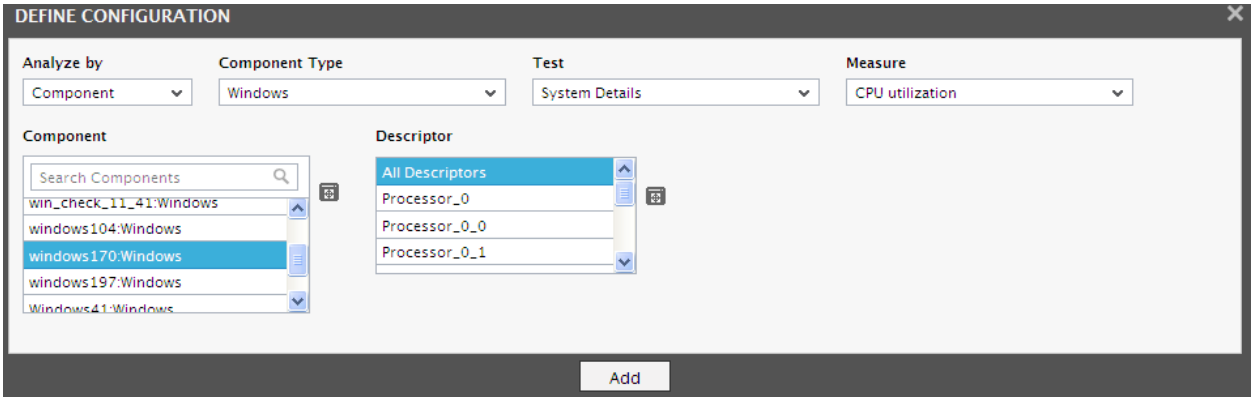


Figure 11.17: Defining the configuration for generating the Prediction Analysis report

4. Pick a criterion for analysis from the **Analyze by** list. Using this report, you can predict the future performance of independent components and those that are part of a segment, service, or a zone. The options provided by the **Analyze by** list box are discussed hereunder:

   - **Component**: Select this option to choose the component(s) from across all the managed components in the environment.

- **Service**: Select this option if the components for which a report is to be generated are involved in the delivery of a business service. Then, select a **Service**.
- **Segment**: Choose this option if the components for which this report is to be generated are part of a segment. Then, pick a **Segment** for analysis.
- **Zone**: Pick this option for a capacity planning report for components that are part of a zone. Then, choose a **Zone**. Also, indicate whether the components within the sub-zones of the chosen zone are also to be to be considered for report generation, by selecting an option from the **Include subzone** list.

5. Based on the criterion chosen from the **Analyze by** list, the **Component Type** list will be populated. Select a component type for which the report is to be generated.
6. Of the tests associated with the chosen component-type, select the **Test** to which this report should pertain.
7. From the **Measure** list, choose the measures for which this report is to be generated.
8. All components of the chosen type spread across the environment, or which are within a chosen segment / service / zone (based on the **Analyze by** selection) will be listed in the **Component** list. Pick the components for which the report is to be generated. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENT** pop up window will then appear using which you can view almost all the components in a single interface and **Select** the ones for which the report is to be generated.
9. Select the descriptors of interest from the **Descriptor** list; to include all descriptors in the analysis, select the *All descriptors* option.

Note

The **Descriptors** list will be populated with descriptors only if a single component is chosen from the **Components** list. If multiple components are chosen, no descriptors will be displayed here for selection.

---

10. If the **Descriptor** list consists of too many descriptors, then viewing all the descriptors and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Descriptor** list. The **DESCRIPTOR** pop up window will then appear using which you can view almost all the descriptors in a single interface and select the ones for which the report is to be generated.
11. Then, click the **Add** button. The specification that you built will be added to the box as shown in Figure 11.18. Similarly, multiple specifications can be added. To remove a specification, simply select the check box corresponding to that row in the box, and click the button. To remove all specifications listed in the box, just select the check box before the column head **Name** so that, all listed specifications are marked for deletion; then, click the button.

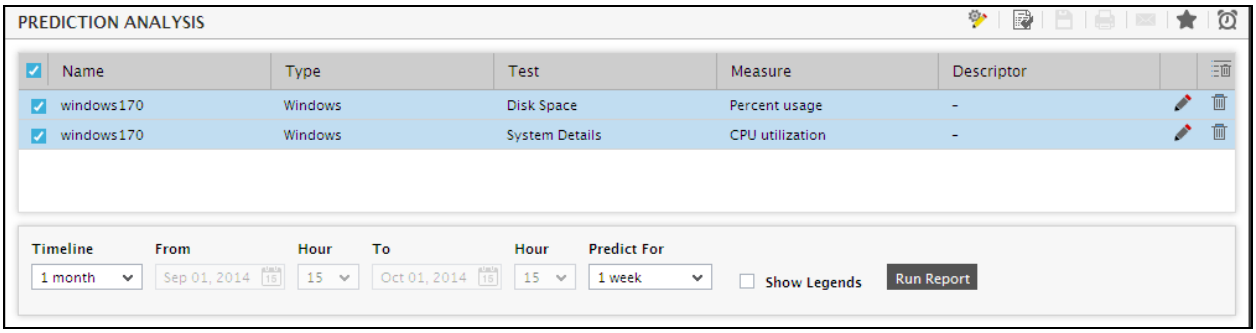


Figure 11.18: Generating the Prediction Analysis report

12. If your specification includes one or more descriptors, you can modify your specification by clicking the button. Figure 11.19 will then appear.

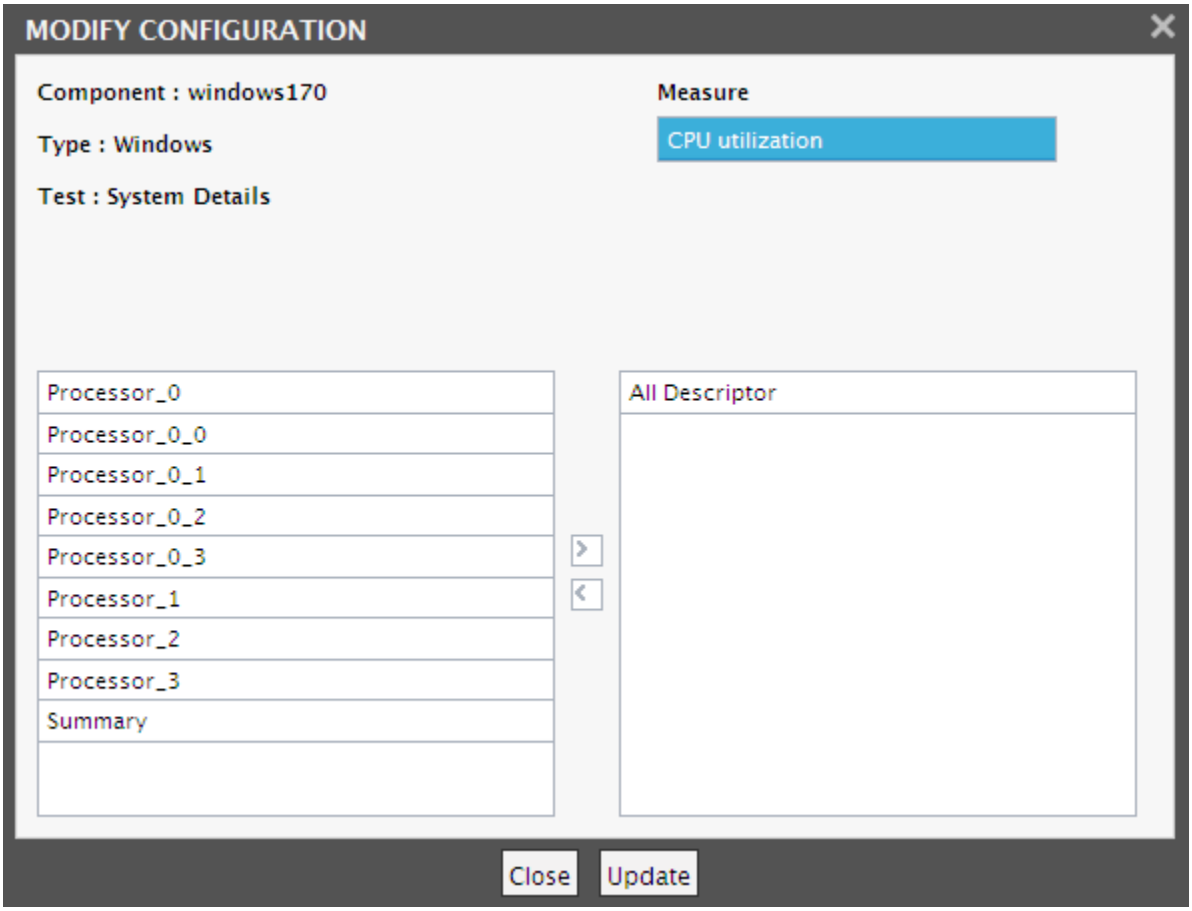


Figure 11.19: Modifying the descriptors

13. To add more descriptors, select one/more options from the **Excluded Descriptors** list in Figure 11.19 and click the **>** button. To remove descriptors, select one/more options from the **Included Descriptors** list and click the **<** button. Finally, click the **Update** button.

14. Also, the **Measure** list in Figure 11.19 will display all the measures for the chosen test, and will indicate which ones have been chosen for report generation. If you want to exclude one/more measures, simply deselect the measures from the **Measure** list, and finally, click the **Update** button.

15. This will lead you back to the report page. Here, provide a **Timeline** for the report.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

16. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick the criteria for generating the report. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 11.20). The steps below discuss each of these settings and how they can be customized.

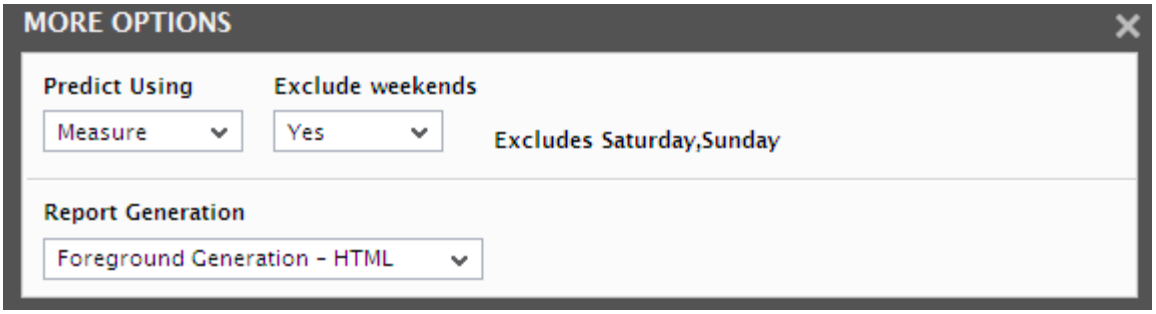


Figure 11.20: The default settings for generating a Prediction Analysis report

17. Next, from the **Predict Using** list (see Figure 11.21), pick the criterion using which the predictions need to be performed. You can choose from the following options:

    - **Measure**: If this option is chosen, then the resulting report will plot time-of-day variations in a chosen measure during the past timeline that you provide; in addition, the report will also plot the expected time-of-day variations in that measure during the future timeline that you specify. This option is ideal for measures where you need to closely observe the variations in order to accurately judge future performance.
    - **Min Trend**: Select this option if the report should indicate only the minimum values registered by the

measure during the past timeline, and how low the measure value can go in the future. This option is ideal for measures such as *Free space* or *Free memory*, where low values are a cause for concern. Using the **Min Trend** report in such cases will enable you to ascertain whether space/memory usage will hit alarming levels in the future; with the help of the warning signals sent out by such a prediction report, you can size your systems and servers adequately, so as to avoid such adversities.

- **Max Trend**: Select this option if the report should indicate only the maximum values registered by the measure during the specified past timeline, and how high the measure can reach in the future. This option is ideal for measures such as *Disk busy* or *Disk space usage*, where high values often indicate a problem condition. Using the **Max Trend** report in such cases will enable you to ascertain whether disk space/activity will hit alarming levels in the future; with the help of the warning signals sent out by such a prediction report, you can size your systems and servers adequately, so as to avoid such adversities.
- **Average**: Select this option if the resulting report should indicate how the measure has been performing, on an average, in the past, and how the average performance will be in the future. Such an option is best suited for measures (such as *CPU utilization*), where you need to clearly distinguish between a sporadic failure and a steady deterioration in performance. The findings from such a report will lead you to potential issues so that, you can quickly initiate preventive action.

18. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.
19. Next, from the **Predict for** list, choose a future timeline for prediction. The resulting graphs will then plot performance forecasts for the chosen timeline. You can predict for a future timeline ranging from 1 week to 1 month.
20. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

21. Finally, click the **Run Report** button to generate the report.
22. If the **Foreground Generation - HTML** option is chosen from the **Report Generation** list, then, Figure 11.21 will appear as soon as the **RUN REPORT BUTTON** is clicked.

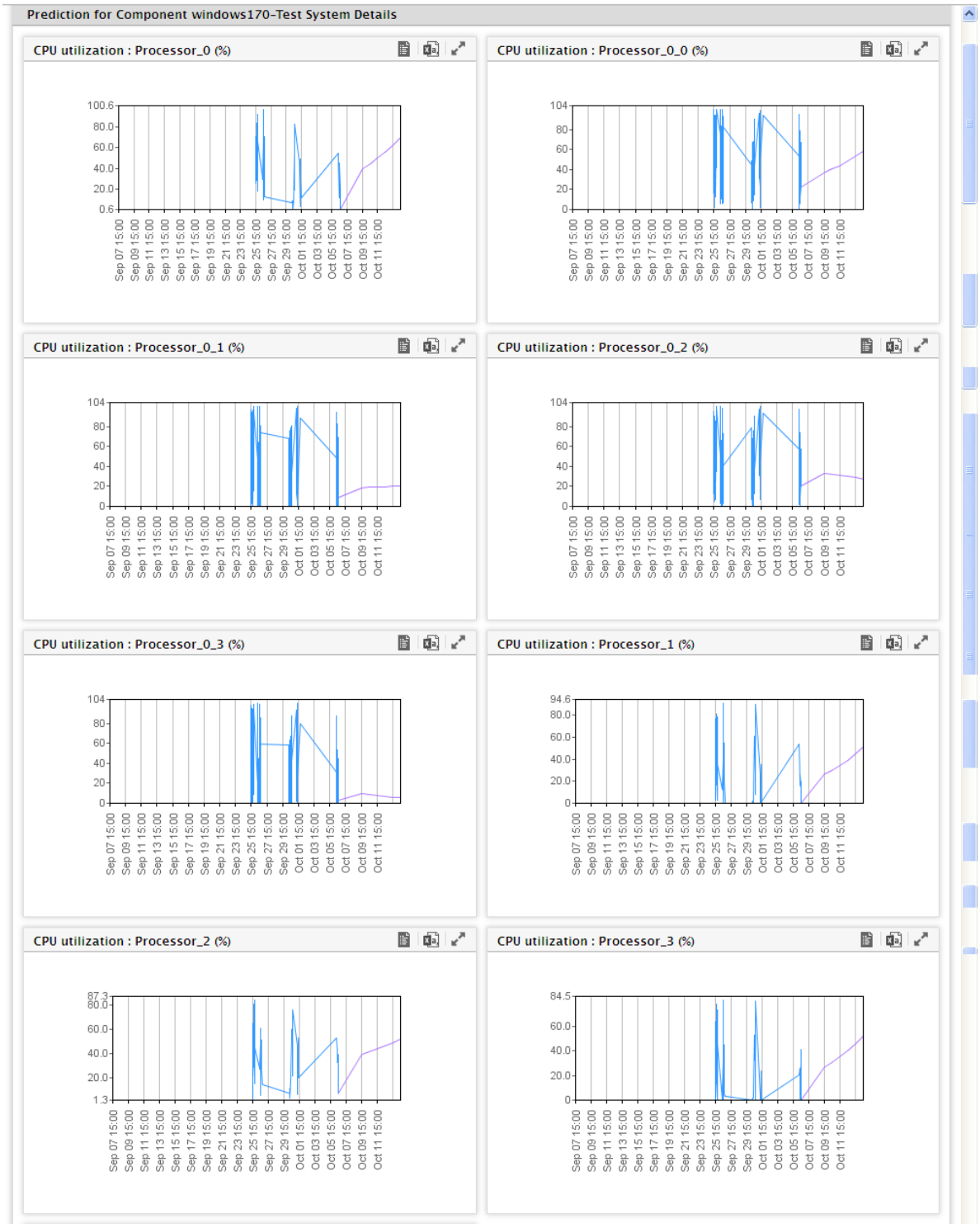

Prediction for Component windows170-Test System Details
CPU utilization : Processor_0 (%)
CPU utilization : Processor_0_0 (%)
CPU utilization : Processor_0_1 (%)
CPU utilization : Processor_0_2 (%)
CPU utilization : Processor_0_3 (%)
CPU utilization : Processor_1 (%)
CPU utilization : Processor_2 (%)
CPU utilization : Processor_3 (%)

Figure 11.21: The Prediction Report

23. Figure 11.21 provides separate sections for each component-test combination that you have chosen. Under each section, you will find individual graphs for every measure and descriptor chosen. Each of these graphs will not only indicate the variations in the values reported by the chosen measure during the past **Timeline** that you have selected, but will also plot auto-computed forecasts for the future timeline chosen from the **Predict for** list.

These future predictions will enable you to pinpoint when in the future performance will peak or hit a low ebb; you can then plan the capacity of your environment or resize critical targets (if required), to avert the anticipated adversities.

24. Click on a graph to enlarge it.

25. Each graph displayed in Figure 11.21 will be accompanied by a button and a button. Clicking on the button at the right, top corner of a graph will enable you to view the data plotted in the graph, and clicking on the button next to it will enable you to save that graph as a CSV file.

26. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **Run Report** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

11.4 Cumulation Analysis Report

The **Cumulation Analysis Report** plots the cumulative values of a chosen measure across descriptors/components, for a specified timeline. For instance, you can generate a **Cumulation Analysis Report** that plots the cumulative values of disk space usage for each of the disk partitions of a component. Likewise, you can configure a **Cumulation Analysis Report** to indicate the cumulative space usage of all servers that share the storage resources in a SAN environment. Such reports not only reveal the total space usage of the individual servers/disk partitions (as the case may be), but also reveal the overall space usage across the servers/disk partitions. This way, you will not only be able to pinpoint the resource-hungry elements in your infrastructure, but will also be able to assess how well/poorly the resource in its entirety was utilized during the given timeline. Based on these inputs, you can accurately forecast the future usage of your critical systems/servers, and plan their capacity accordingly.

To generate a **Cumulation Analysis Report**, do the following:

1. Select the **Cumulation Analysis** option from the **Capacity Planning** node of the **REPORTS BY FUNCTION** tree.

2. Figure 11.22 will then appear.

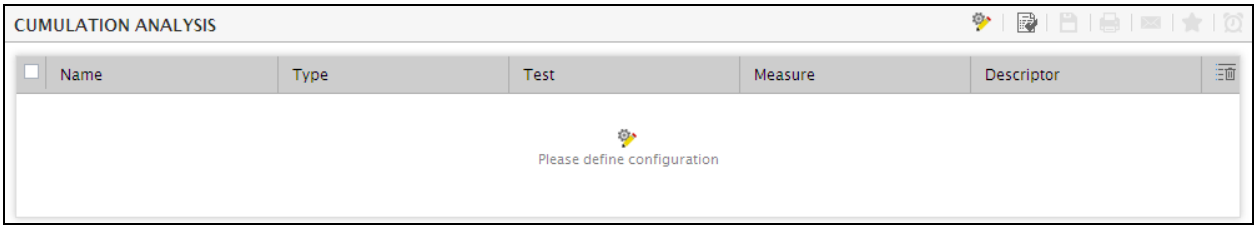


Figure 11.22: The Cumulation Analysis report generation

3. Clicking the **Please define configuration** link on Figure 11.22 will reveal Figure 11.23 using which you can define the congiuration for generating the Cumulation Analysis report.

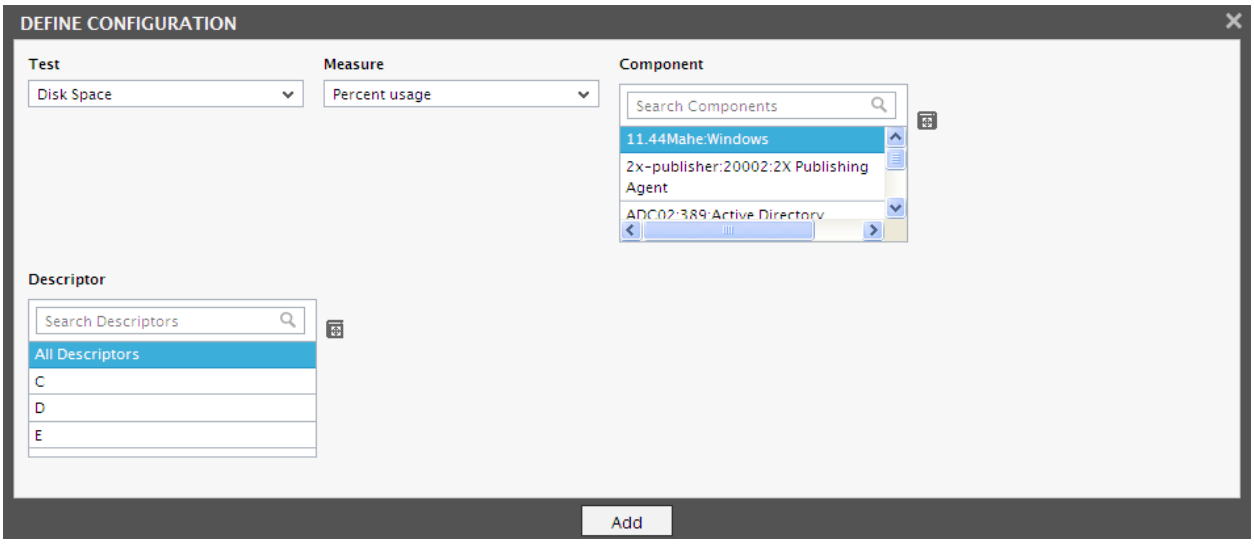


Figure 11.23: Defining the configuration for generating the Cumulation Analysis report

4. First, select the **Test** for which the report is to be generated (see Figure 11.23).
5. All measures of the chosen test will then populate the **Measure** list. From this list, pick the measure for which the report is to be generated.
6. All managed components to which the chosen **Test-Measure** combination applies will then be listed in the **Component** list. Select one or more components for report generation from this list. If the **Component** list consists of too many components, then viewing all the components and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Component** list. The **COMPONENT** pop up window will then appear using which you can view almost all the components in a single interface and select the ones for which the report is to be generated.
7. If the chosen **Test** supports descriptors, then the **Descriptor** list will display all descriptors. To generate a report that plots the cumulative values of specific descriptors, select those descriptors alone. For a report on all descriptors, pick the *All Descriptors* option. If the **Descriptor** list consists of too many descriptors, then viewing all the descriptors and selecting the ones you need for report generation could require endless scrolling. To avoid this, you can click the button next to the **Descriptor** list. The **DESCRIPTOR** pop up window will then appear using which so that you can view almost all the descriptors in a single interface and select the ones for which the report is to be generated.
8. Click the **Add** button to add the specifications as shown in Figure 11.24. Likewise, you can add multiple specifications.

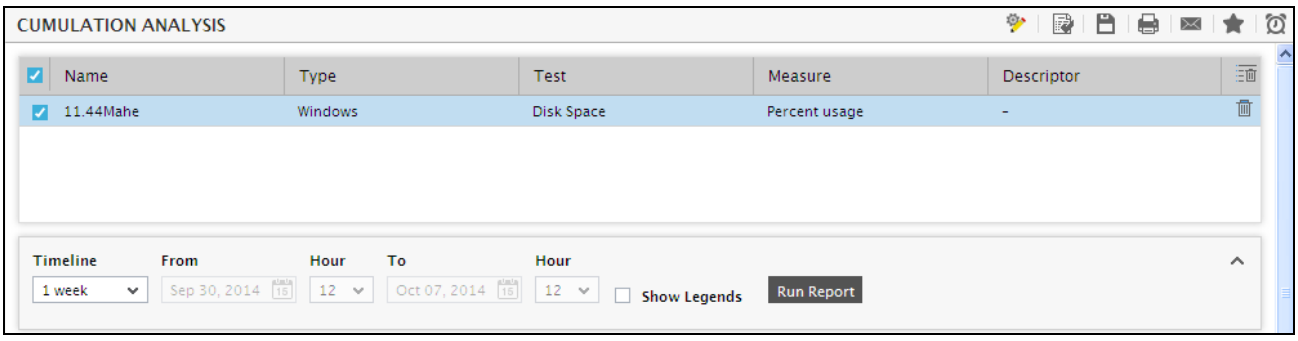


Figure 11.24: Generating a Cumulation Report

9. To remove a specification, select the check box corresponding to it and click the button.
10. Then, specify the report **Timeline**.

Note

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

11. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick the criteria for generating the report. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 11.25). The steps below discuss each of these settings and how they can be customized.

Figure 11.25: The default settings for generating a Cumulation Analysis report

12. Next, by choosing an option from the **Cumulate Using** list, you can indicate what values of the chosen measure are to be cumulated for the report. The options are as follows:
    - **Measure**: Select this option if you want to cumulate the real-time values reported by the chosen measure during the specified timeline.
    - **Min Trend**: Select this option if you want to cumulate only the minimum trend values computed for the chosen measure during the specified timeline. Pick an option from the **Report Summary** list to indicate the trend values to be considered for the cumulation - the **Hourly Summary**, **Daily Summary**, or **Monthly Summary**. For instance, if the **Min Trend** and **Hourly Summary** options are chosen from the respective list

boxes, then the lower of the trend values computed every hour during the specified timeline will be cumulated for the report. Say, you generate a report for the *Free memory* measure using the cumulative minimum hourly trend values; with the help of such a report, you to ascertain the minimum amount of memory that should be provisioned for a system/server to function smoothly.

- **Max Trend**: Select this option if you want to cumulate only the maximum trend values computed for the chosen measure during the specified timeline. Pick an option from the **Report Summary** list to indicate the trend values to be considered for the cumulation - the **Hourly Summary**, **Daily Summary**, or **Monthly Summary**. For instance, if the **Max Trend** and **Hourly Summary** options are chosen from the respective list boxes, then the higher of the trend values computed every hour during the specified timeline will be cumulated for the report. Say, you generate a report for the *CPU utilization* measure using the cumulative maximum hourly trend values; with the help of such a report, you can determine how high the CPU usage of a system/server can rise, and whether more processors need to be added to balance the CPU load.

13. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

14. Finally, click the **Run Report** button. If the **Foreground Generation - HTML** option is chosen from the **Report Generation** list, a **Cumulation Analysis** Report depicted by Figure 11.26 will appear.

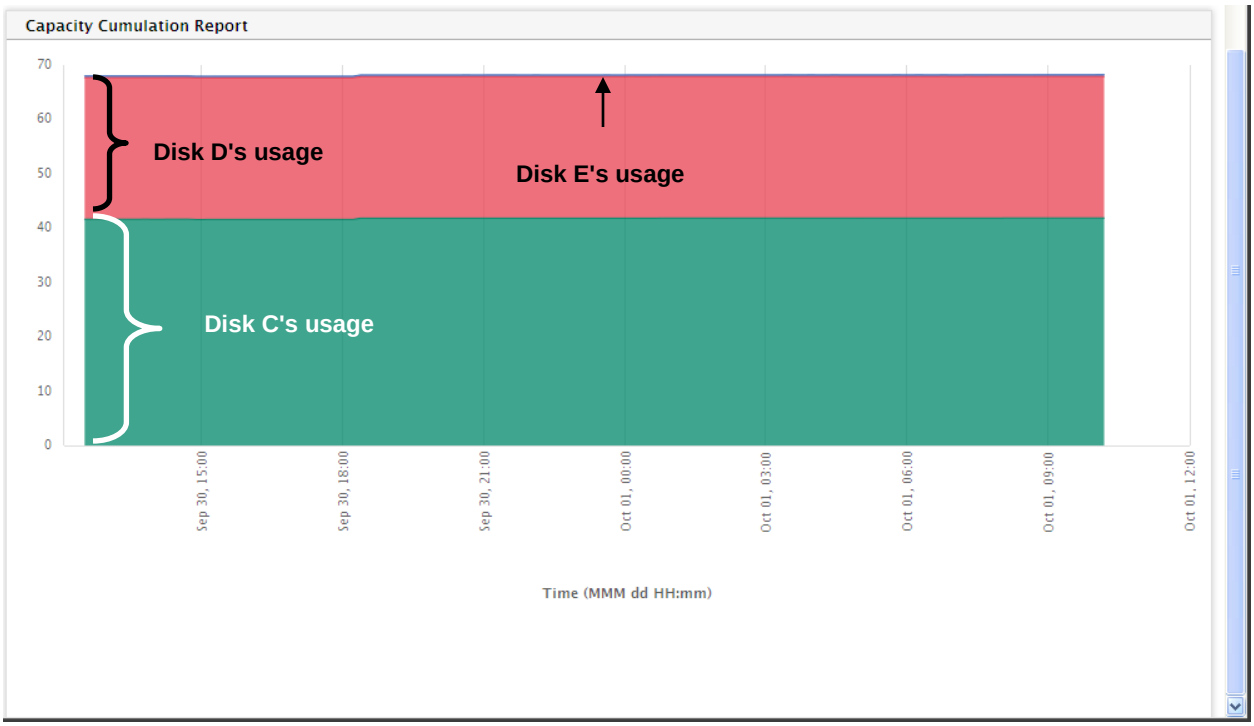


Figure 11.26: A Cumulation Report

15. The report in Figure 11.26 plots the cumulative values of disk space usage for each of the disk partitions on a system during the last week. Typically, any cumulation report generated by the eG Reporter will plot values in a 'stack format', so that users can easily determine total usage and per-descriptor usage in a single glance. For instance, from Figure 11.26 it is evident that disk C has consumed a total of 41% of the disk space during the last week - the shaded portion in the graph between 0 and 41% indicates C's usage. It can also be inferred that disk C and disk D together have consumed a total of 67% of the disk space on the system. Since disk D's usage is stacked on top of disk C's usage, the shaded area of the graph between 41 and 67% alone denotes disk D's usage. Disk D's usage therefore amounts to another 26% (61-47=26) of the total disk space. Likewise, disk E's usage is stacked on top of Disk D's usage in the graph, covering a small area. This implies that while disk E consumed a meager amount of disk space say 0.5% of the total disk space, all three disk partitions (C, D, and E) together have eroded a total of 68% of the available disk space.

16. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT BUTTON** will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the icon in that page.

11.5 Correlation Analysis Report

In order to effectively plan the capacity of their IT environments, administrators have to closely observe how resource consumption / responsiveness / overall performance of a component varies vis-a-vis its load. For instance, administrators might want to check how disk space usage is affected by high disk activity or correlate the response time of a Web server with the connections to that server. The results of this correlation analysis will enable

administrators to judge how usage/response time will be affected by the anticipated load and accordingly ascertain the future capacity requirements of their critical servers/systems.

The **Capacity Correlation Report** enables this correlation analysis. With the help of this report, administrators can pick two closely related measures and plot their historical values in a single graph, with one measure being the X axis and the other being the Y axis. For instance, you can pit disk space usage against free space on the disk in the same graph. To generate this **Capacity Correlation Report**, do the following:

1. Select the **Correlation Analysis** option from the **Capacity Planning** node of the **REPORTS BY FUNCTION** tree. Figure 11.27 then appears.

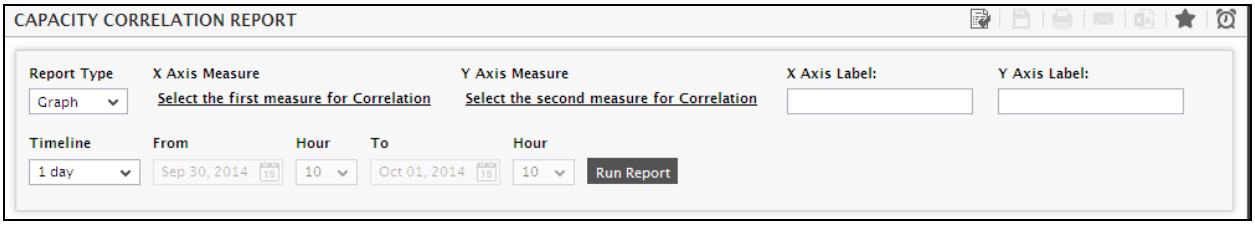


Figure 11.27: Generating a Correlation Report

2. First, pick a **Report Type**. Select **Graph** for a graphical report.
3. Then, to add the first measure to be plotted in the report, click on the **Select the first measure for Correlation** link in Figure 11.27. Figure 11.28 then appears.

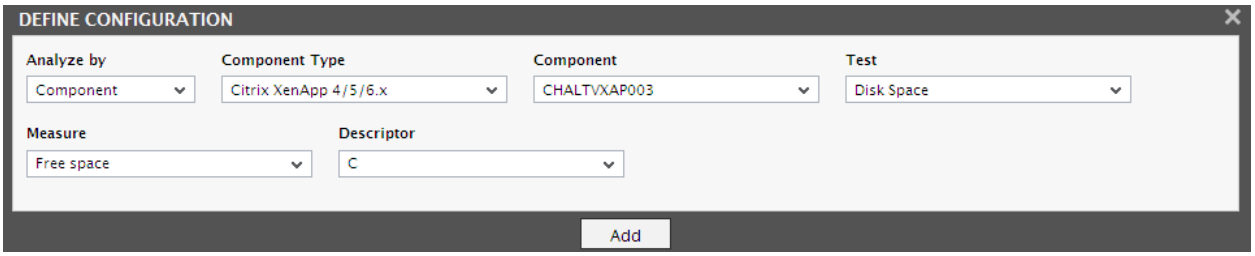


Figure 11.28: Choosing the first measure for correlation

4. When Figure 11.28 appears, do the following:
   - In large environments, you might have to choose the component of interest to you from a long list of components. To avoid the drudgery of scrolling an endless component list to locate the component of your choice, you can select a criterion for filtering the component list from the **Analyze by** drop-down. The options are as follows:
     - **Component**: To select the component from the list of managed components of a particular type, select this option from the **Analyze by** list. Then, pick a **Component Type**. This will populate the **Component** list with all managed components of the chosen type. Select a component from this list.
     - **Zone**: If the component you are looking for is part of a zone/sub-zone, then select this option. You will then have to pick the **Zone** to which the component belongs. To search even the sub-zones of the chosen zones for the component, set the **Include Subzone** flag to **Yes**. All component-types that are part of the selected zone will then appear in the **Component Type** list. Upon choosing a type, the components of that type that are part of the zone will then appear in the **Component** list. Pick a component from within.
     - **Segment**: If the component for the correlation is part of a segment, then select this option. Next, pick

the **Segment** to which the component belongs, and then pick a **Component Type** from the list of component-types that are part of the segment. Once the **Component** list is populated with those components of the chosen type that are part of the selected segment, pick the component of your choice from within.

- **Service**: If the component for the correlation is involved in the delivery of a specific service, then select this option. Next, pick the **Service** with which the component is associated, and then pick a **Component Type** from the list of component-types that are part of the service topology. Once the **Component** list is populated with those components of the chosen type that are part of the selected service, pick the component of your choice from within.

➢ Next, pick the **Test** and then the **Measure** to be correlated.

➢ If the **Test** selected supports descriptors, then pick the descriptor to be used for the correlation.

➢ Then, click the **Add** button.

5. Once back in the **Capacity Correlation Report** page (see Figure 11.29), click on the **Select the second measure for Correlation** link therein to add the second measure for the correlation. The steps for adding a measure for correlation have already been discussed at step 4 above.

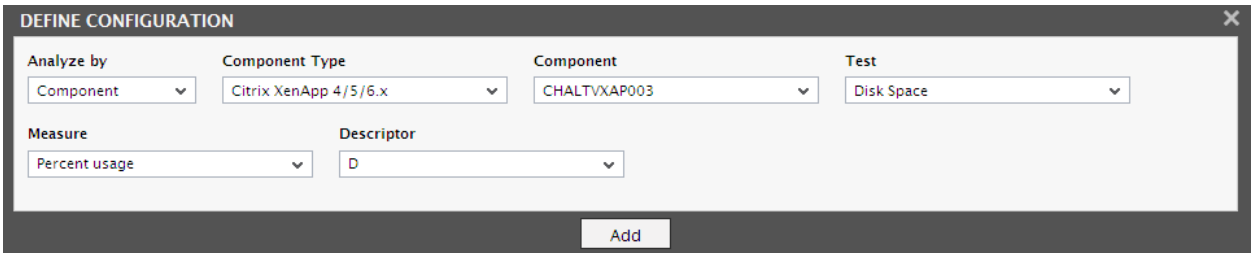


Figure 11.29: Choosing the second measure for correlation

6. Once both measures are added, proceed to provide labels for the X and Y axis of the graph, in case of a **Graph** report (see Figure 11.30). Typically, the first measure you choose will be the X Axis, and the second one will be the Y axis. If no labels are provided, then the measure names will be automatically set as labels for both the axes.

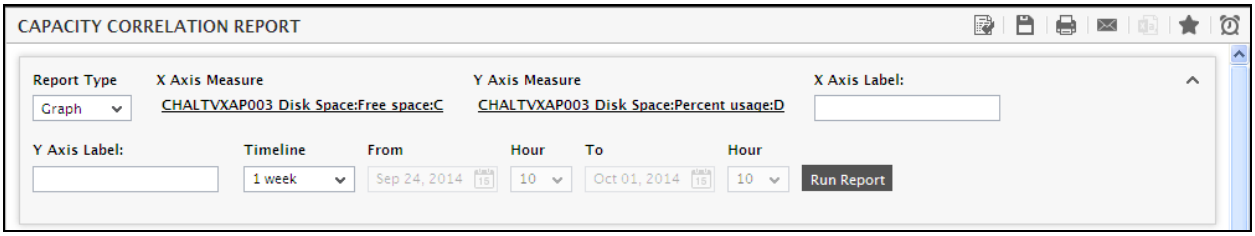


Figure 11.30: Generating the Capacity Correlation Report

7. Then, specify the report **Timeline**.

For every user registered with the eG Enterprise system, the administrator can indicate the maximum timeline for which that user can generate a report. Once the maximum timeline is set for a user, then, whenever that user logs into eG Reporter and attempts to generate a report, the **Timeline** list box in the report page will display options according to the maximum timeline setting of that user. For instance, if a user can generate a report for a maximum period of 3 days only, then 3 days will be the highest option displayed in the **Timeline** list - i.e., 3 days will be the last option in the fixed **Timeline** list. Similarly, if the user chooses the **Any** option from the **Timeline** list and proceeds to provide a start date and end date for report generation using the **From** and **To** specifications, eG Enterprise will first check if the user's **Timeline** specification conforms to his/her maximum timeline setting. If not, report generation will fail. For instance, for a user who is allowed to generate reports spanning over a maximum period of 3 days only, the difference between the **From** and **To** dates should never be over 3 days. If it is, then, upon clicking the **Run Report** button a message box will appear, prompting the user to change the **From** and **To** specification.

8. In addition to the settings discussed above, this report comes with a set of default specifications. These settings are hidden by default. If you do not want to disturb these default settings, then you can proceed to generate the report by clicking the **Run Report** button soon after you pick the criteria for generating the report. However, if you want to view and then alter these settings (if required), click on the icon. The default settings will then appear in the **MORE OPTIONS** drop down window (see Figure 11.31). The steps below discuss each of these settings and how they can be customized.

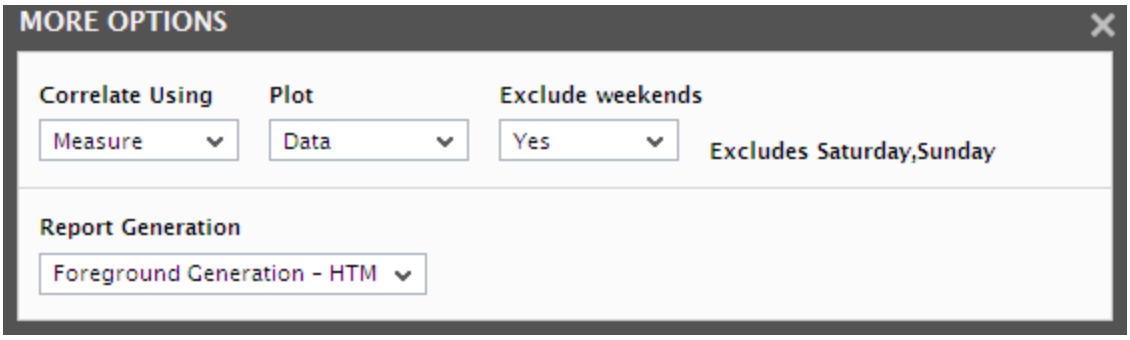


Figure 11.31: The default settings for generating a Capacity Correlation report

9. Next, indicate the type of data to be plotted in the graph by picking an option from the **Correlate Using** drop-down. If raw performance metrics are to be correlated, pick the **Measure** option. If you want to use only the minimum trend values for correlation, then pick the **Min Trend** option. Likewise, to use the maximum trend values, select the **Max Trend** option. Else, select the **Average** option to use the average performance values for correlation. If you choose the **Min Trend**, **Max Trend**, or **Average** options, you will have to select an option from the **Trend Data** list ton to indicate what type of trend values are to be used for the correlation - whether **Hourly** or **Daily**.

10. Select an option from the **Plot** list box to ascertain the graph according to your desire. By default, **Data** option is displayed in this list box indicating that all the Y axis values obtained for the measure will be plotted against their corresponding X axis values. In large environments, where higher amount of values are generated for months of data, the graph that is generated for correlating the measures becomes tedious with multiple Y axis plottings against the X axis data. With such heavy Y axis plottings, overlapping of data makes it difficult for the

administrator to understand the graph. Moreover, the administrator may not be interested to track minute variations in the graph when months of data have to be accessed. In such a case, a more legible graph needs to be generated which would enable the administrator to track the changes that had happened during the chosen time period. For generating such a legible graph, you need to plot a single Y axis value against an X axis value. To plot such a Y axis value, select either the **Average/Minimum/Maximum** options from the **Plot** list box. If **Average** option is selected from this list box, then the average of all the Y axis values corresponding to that X axis value will be determined and plotted in the graph.

11. To determine the exact point in the X axis against which the determined Y axis value has to be plotted, you can use the **X Axis Grouping Unit** list box. By default, the **Default Grouping** option is displayed in this list box indicating that the X axis values are determined by default. Suppose if you choose **100** from this list box, your X axis starts at 17000, then, the Y axis values that fall in the range of 17000 and 17100 will be determined. Now, the functionality chosen from the **Plot** list box will be applied on those Y axis values and a single Y axis value will be determined. This Y axis value will be plotted against the median of the X axis value range i.e., this value will be plotted against 17050.
12. If the timeline specified for the report needs to exclude the data collected during the Weekends, then set **Exclude weekends** to **Yes**. If not, select **No**.
13. In large environments, reports generated using months of data can take a long time to complete. Administrators now have the option of generating reports on-line or in the background. When a report is scheduled for background generation, administrators can proceed with their other monitoring, diagnosis, and reporting tasks, while the eG manager is processing the report. This saves the administrator valuable time. To schedule background processing of a report, select the **Background Save - PDF** option from the **Report Generation** list. In this case, a **Report Name** text box will appear, where you would have to provide the name with which the report is to be saved in the background. To process reports in the foreground, select the **Foreground Generation - HTML** option from this list.

- The **Report Generation** list will appear only if the **EnableBackgroundReport** flag in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file (in the **{EG_INSTALL_DIR}\manager\config** directory) is set to **Yes**.
- The default selection in the **Report Generation** list will change according to the **Timeline** specified for the report. If the **Timeline** set is greater than or equal to the number of days specified against the **MinDurationForReport** parameter in the **[BACKGROUND_PROCESS]** section of the **eg_report.ini** file, then the default selection in the **Report Generation list** will be **Background**. On the other hand, if the **Timeline** set for the report is lesser than the value of the **MinDurationForReport** parameter, then the default selection in the **Report Generation** list will be **Foreground**. This is because, the **MinDurationForReport** setting governs when reports are to be processed in the background. By default, this parameter is set to 2 weeks - this indicates that by default, reports with a timeline of 2 weeks and above will be processed in the background.

14. Finally, click the **Run Report** button. If the **Report Type** is **Graph** and **Foreground Generation - HTML** option is chosen from the **Report Generation** list, a **Capacity Correlation Report** depicted by Figure 11.32 will appear.

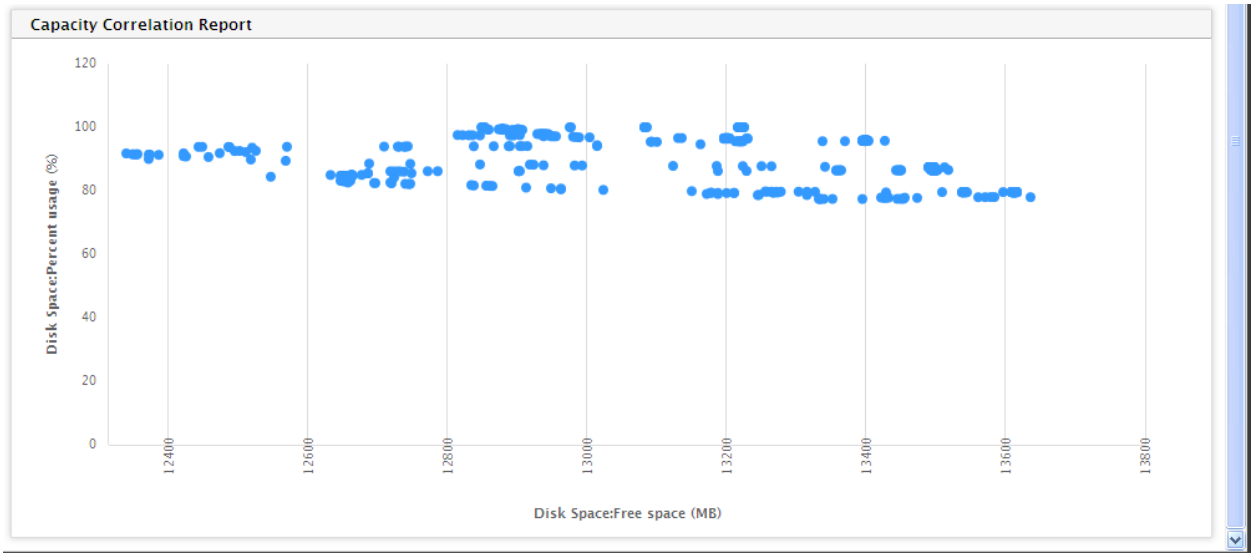


Figure 11.32: A Graphical Capacity Correlation Report

15. In the graph of Figure 11.32, the free space of a disk partition is correlated with the disk space usage of that disk partition. A single glance at the graph would suffice to understand how an increase in the space usage of the disk partition over time has eroded the free space on that disk partition. Using this computation, administrators can determine how much more disk space should be allocated to ensure that there is adequate free space to support higher usage levels.

16. If the **Report Type** is **Graph** and the **Average** option is chosen from the **Plot** list box along with an **X Axis Grouping Unit** of 100, a **Correlation Report** as depicted by Figure 11.20 will appear. The graph depicted by this report will now be more legible when compared to plotting months of data together. This graph will help administrators to track the minute variations in the measure values without compromising on the legibility of the graph.

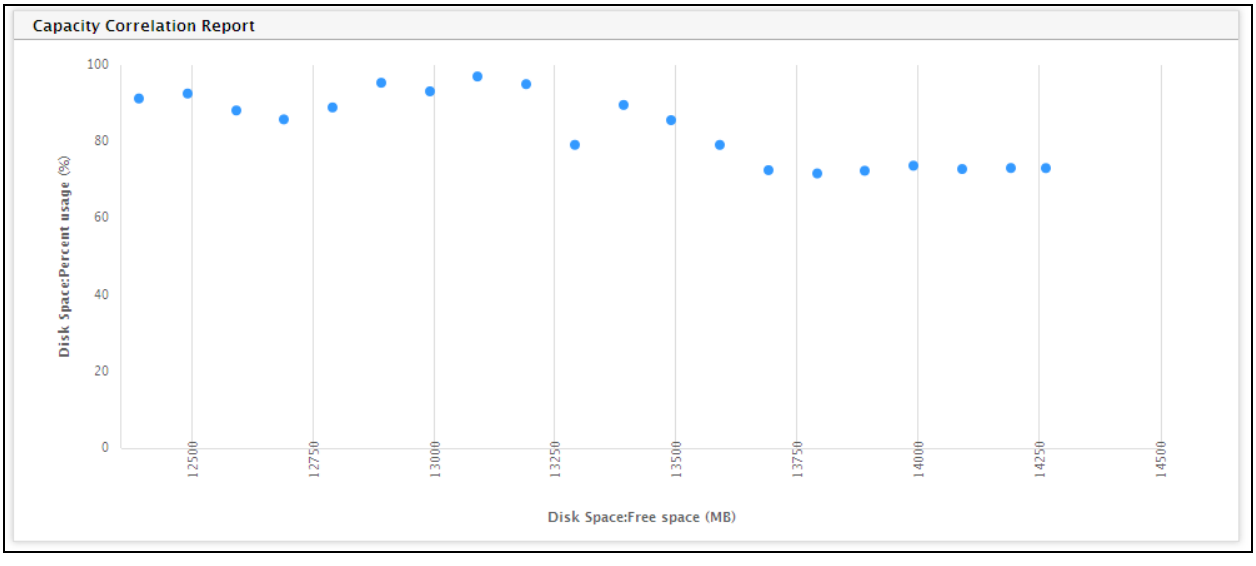
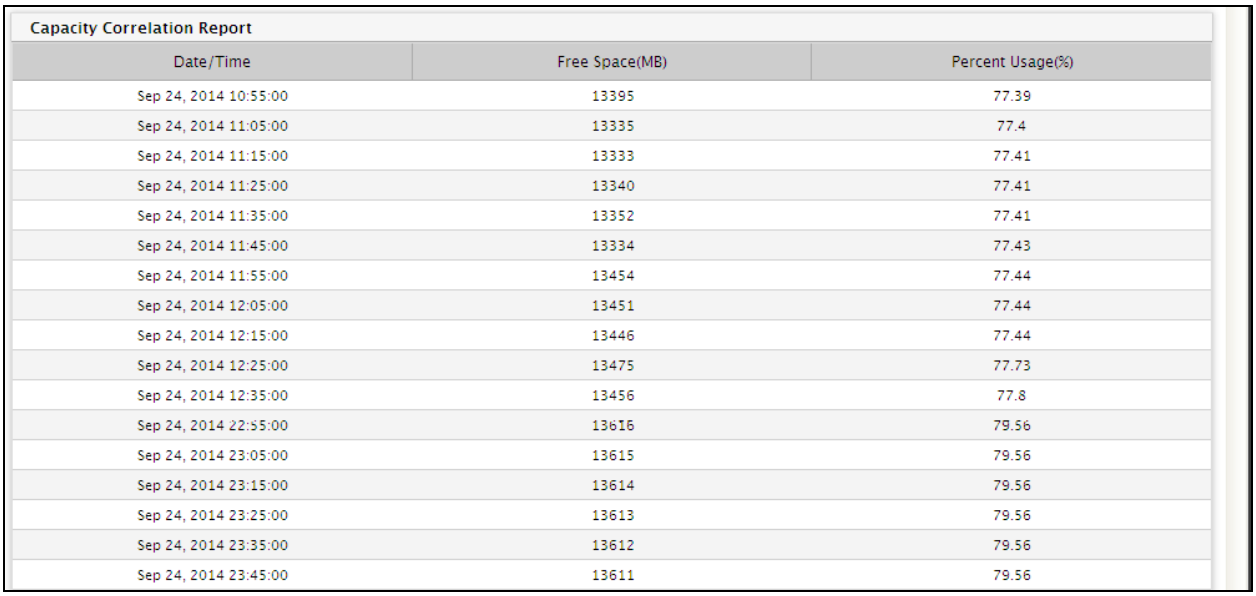


Figure 11.33: The Correlation Report when the *Average* option is chosen from the *Plot* list box

17. If the **Report Type** was **Data** and the **Data** option is chosen from **Plot** list box, then clicking the **RUN REPORT BUTTON** will invoke Figure 11.34, where a tabular comparison of the metrics of the two chosen measures will be

available.

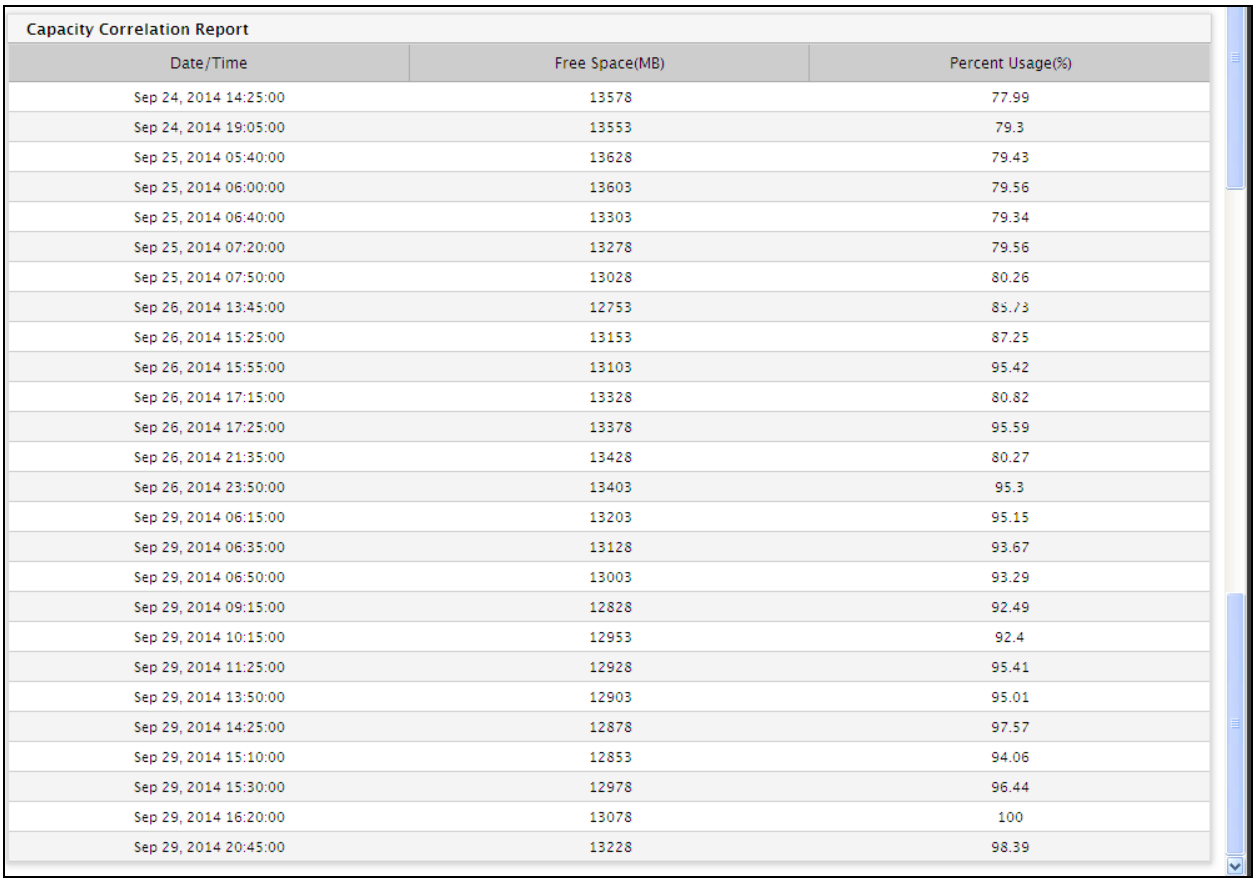


Capacity Correlation Report

Date/Time	Free Space(MB)	Percent Usage(%)
Sep 24, 2014 10:55:00	13395	77.39
Sep 24, 2014 11:05:00	13335	77.4
Sep 24, 2014 11:15:00	13333	77.41
Sep 24, 2014 11:25:00	13340	77.41
Sep 24, 2014 11:35:00	13352	77.41
Sep 24, 2014 11:45:00	13334	77.43
Sep 24, 2014 11:55:00	13454	77.44
Sep 24, 2014 12:05:00	13451	77.44
Sep 24, 2014 12:15:00	13446	77.44
Sep 24, 2014 12:25:00	13475	77.73
Sep 24, 2014 12:35:00	13456	77.8
Sep 24, 2014 22:55:00	13616	79.56
Sep 24, 2014 23:05:00	13615	79.56
Sep 24, 2014 23:15:00	13614	79.56
Sep 24, 2014 23:25:00	13613	79.56
Sep 24, 2014 23:35:00	13612	79.56
Sep 24, 2014 23:45:00	13611	79.56

Figure 11.34: A Correlation Report of type Data

18. If the **Report Type** was **Data** and the **Data** option is chosen from **Plot** list box, then clicking the **Run Report** button will invoke Figure 11.35, where a tabular comparison of the metrics of the two chosen measures will be available.



Capacity Correlation Report

Date/Time	Free Space(MB)	Percent Usage(%)
Sep 24, 2014 14:25:00	13578	77.99
Sep 24, 2014 19:05:00	13553	79.3
Sep 25, 2014 05:40:00	13628	79.43
Sep 25, 2014 06:00:00	13603	79.56
Sep 25, 2014 06:40:00	13303	79.34
Sep 25, 2014 07:20:00	13278	79.56
Sep 25, 2014 07:50:00	13028	80.26
Sep 26, 2014 13:45:00	12753	85.73
Sep 26, 2014 15:25:00	13153	87.25
Sep 26, 2014 15:55:00	13103	95.42
Sep 26, 2014 17:15:00	13328	80.82
Sep 26, 2014 17:25:00	13378	95.59
Sep 26, 2014 21:35:00	13428	80.27
Sep 26, 2014 23:50:00	13403	95.3
Sep 29, 2014 06:15:00	13203	95.15
Sep 29, 2014 06:35:00	13128	93.67
Sep 29, 2014 06:50:00	13003	93.29
Sep 29, 2014 09:15:00	12828	92.49
Sep 29, 2014 10:15:00	12953	92.4
Sep 29, 2014 11:25:00	12928	95.41
Sep 29, 2014 13:50:00	12903	95.01
Sep 29, 2014 14:25:00	12878	97.57
Sep 29, 2014 15:10:00	12853	94.06
Sep 29, 2014 15:30:00	12978	96.44
Sep 29, 2014 16:20:00	13078	100
Sep 29, 2014 20:45:00	13228	98.39

Figure 11.35: A Correlation Report of type Data when *Average* option is selected from the *Plot* text box

19. If the **Background Save - PDF** option is chosen from the **Report Generation** list, then clicking on the **RUN REPORT** button will not generate the report and display it in this page for your benefit. Instead, a message indicating that the report is being processed in the background will appear. This will be accompanied by a link that will lead you to the page that lists all the reports that are being processed in the background, and their current status. If background report generation fails for a report, you can regenerate that report using this page, or can even delete that report if need be. On the other hand, if background processing successfully completes for your report, then, you can view a PDF of the report by clicking on the PDF icon in that page.

12

Consolidated Event Log Analysis Reports

In order to comply with emerging standards such as HIPPA, Sarbanes Oxley, etc., IT infrastructure operators require a wide range of reports that reveal the service level achieved by a target environment, intermittent breaks in service delivery (if any), the reasons for the breaks, how quickly was the service restored, etc. To cater to these compliance requirements, the eG Reporter offers the **Consolidated Event log Analysis** reports.

Many applications record errors and events in various proprietary error logs. These proprietary error logs have different formats and display different user interfaces. Moreover, the system administrator cannot merge the data to provide a complete report. Therefore, the administrator needs to check a variety of sources to diagnose problems. Event logging in Microsoft® Windows NT®/Windows® 2000 provides a standard, centralized way for applications and the operating system to record important software and hardware events. The event-logging service stores events from various sources in a single collection called an event log. The system administrator can use the event log to help determine what conditions caused the error and the context in which it occurred. By periodically viewing the event log, the system administrator may be able to identify problems (such as a failing hard drive) before they cause damage. However, since the event logs are maintained per server, and due to the absence of a common interface for viewing the event log information collected from across the environment, it becomes almost impossible for administrators to perform any effective enterprise-wide correlation and analysis of events. This in turn greatly hinders the process of problem recognition and resolution. The primary purpose of the **Consolidated Event Log Analysis** reports therefore, is to enable administrators to pull event log data from multiple sources on multiple hosts across the environment into a centralized database, so that efficient queries can be executed and the necessary event information viewed from a single interface. Secondly, and most importantly, as this report serves as a "one-stop-shop" for clear, concise event information related to the target environment, it brings to light errors/warnings/security breaches that could have hampered the normal functioning of the target environment. This capability is particularly useful for organizations in the financial and healthcare sector that have stringent Sarbanes Oxley and HIPPA compliance requirements, respectively.

To view a **Consolidated Event Log Analysis** report, do the following:

1. Select the **Consolidated Event Log Analysis** option from the **Compliance** node of the **REPORTS BY FUNCTION** tree option in the eG Reporter menu. Figure 12.1 will then appear.

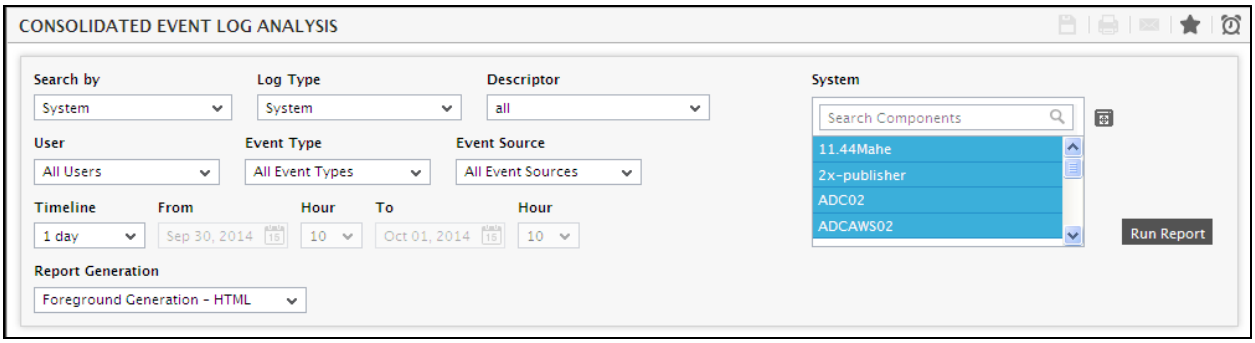


Figure 12.1: Generating a Consolidated Event Log Analysis Report

2. From the **Search by** list of Figure 12.1, pick the criteria for searching for the hosts/systems from which event log information need to be extracted. The options are: **Zone**, **Service**, **Segment**, and **System**. If the **Zone** option is selected from the **Search by** list, then a **Zone** list box will appear. From this list, select the zone containing the hosts from which the event log details are to be collected. If you select the **Service** or **Segment** option from the **Search by** list, then a **Service** or **Segment** list box (as the case may be) will appear. From the corresponding list, select the **Service** or **Segment** containing the systems to participate in the event log aggregation. If you want to choose the candidates for log aggregation from across all managed systems in the environment, then select the **System** option from the **Search by** list.

Note

If the hosts/systems from which event log information is to be retrieved are not part of any existing zone, then you can choose the **Default** option from the **Zone** list. This zone is automatically created by the eG Enterprise system, and includes all those infrastructure elements that are not mapped to any zone, segment, or service.

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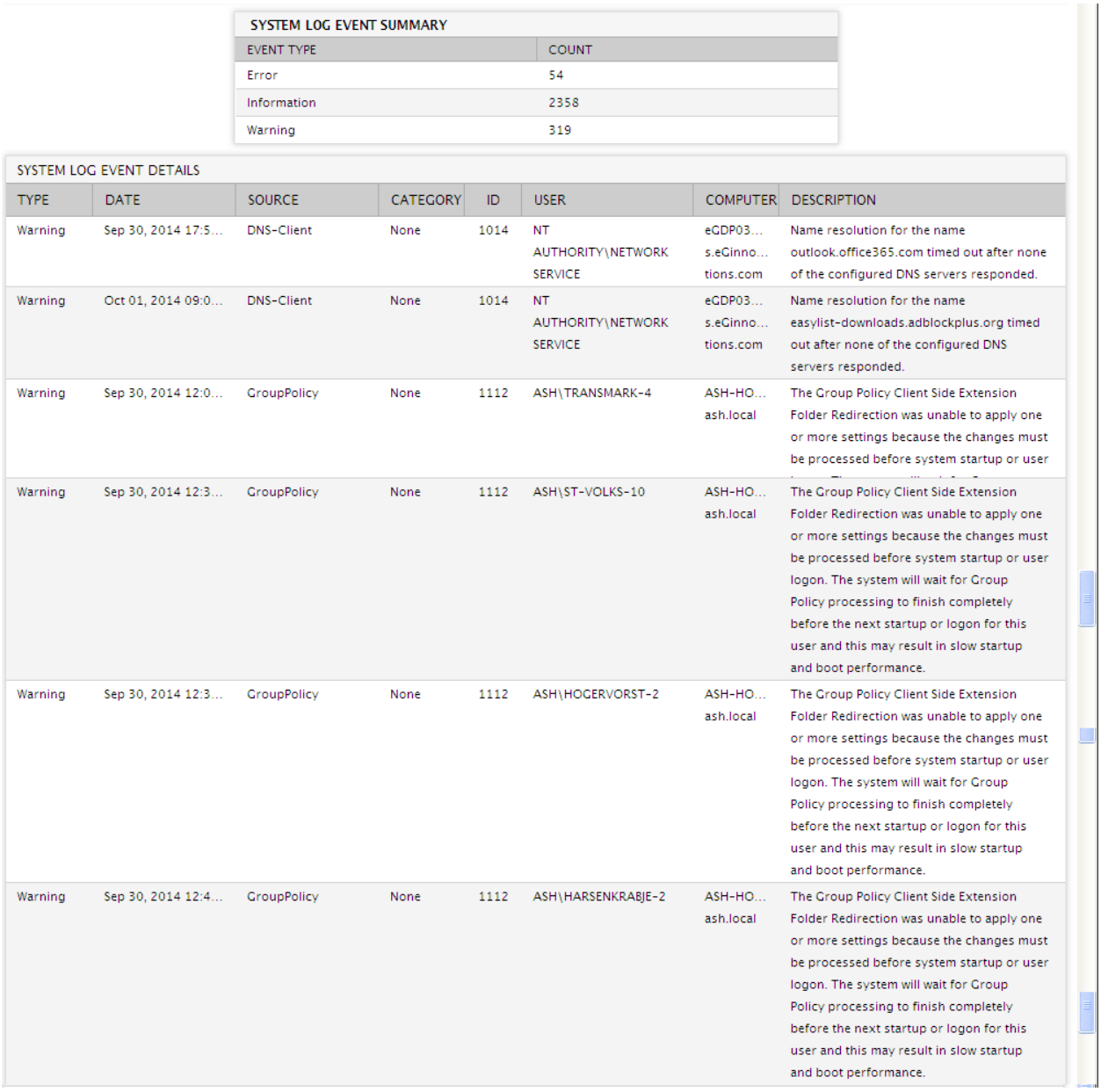
3. If you select a particular **Zone**, **Service**, or **Segment**, then the **System** list box will be populated with only those distinct hosts that belong to the chosen **Zone**, **Service**, or **Segment**. However, if the *System* option is selected from the **Search by** list, then all managed host/systems in the monitored environment will be displayed in the **System** list box. From this list box, select the specific systems for which the event log reports are to be generated.
4. Next, pick the type of event logs for which the report is to be generated from the **Log Type** list. The options are: *Application, Security, and System.*
5. Typically, the eG agent executes an ApplicationEventLog test, a SystemEventLog test, and a SecurityLog test on a host to extract statistics related to the application, system, and security events (respectively) that occur on that host. While configuring these tests, you can provide specific 'event source-ID-description' combinations to be monitored on the host. The *Display Names* assigned to these configured combinations will be the 'descriptors' of these tests. The **Descriptor** list in this page will be populated with these *Display Names* only. From this list, select the descriptor for which the event log report is to be generated. The default selection here is, *All Descriptors*.
6. The Event Log metrics reported by the eG agent also include the name/ID of the user who triggered the events. The **User** list in this page consists of these users only. If you want a report on the events triggered by a particular user, select a user from this list. For events associated with all users, go with the default *All Users* option.

7. If you want to view information related to a particular event type, select the **Event Type** of event from the list box. The contents of this list box will change based on the **Log Type** chosen. For instance, if the **Log Type** is *Application*, then the **Event Type** list will offer the following choices: *Error*, *Information*, *Warning*. On the other hand, if the **Log Type** is *Security*, then you have to choose from the following event types: *Audit successes* and *Audit failures*. The default selection however, is *All Event Types*, which reports the details of events of all types that have occurred on the chosen systems.
8. For details pertaining to a specific event source, select an **Event Source** from the list. The default selection is *All Event Sources*, which will retrieve details pertaining to all the event sources on the chosen systems.
9. Provide a report **Timeline**. You can either select a fixed timeline such as 1 hour, 2 days, etc., or choose the *Any* option from the **Timeline** list, and then provide a **From** and **To** date/time for report generation.
10. Finally, click the **Run Report** button to view the query results.



SYSTEM LOG EVENT SUMMARY

EVENT TYPE	COUNT
Error	54
Information	2358
Warning	319

SYSTEM LOG EVENT DETAILS

TYPE	DATE	SOURCE	CATEGORY	ID	USER	COMPUTER	DESCRIPTION
Warning	Sep 30, 2014 17:5...	DNS-Client	None	1014	NT AUTHORITY\NETWORK SERVICE	eGDP03... s.eGinno... tions.com	Name resolution for the name outlook.office365.com timed out after none of the configured DNS servers responded.
Warning	Oct 01, 2014 09:0...	DNS-Client	None	1014	NT AUTHORITY\NETWORK SERVICE	eGDP03... s.eGinno... tions.com	Name resolution for the name easylist-downloads.adblockplus.org timed out after none of the configured DNS servers responded.
Warning	Sep 30, 2014 12:0...	GroupPolicy	None	1112	ASH\TRANSMARK-4	ASH-HO... ash.local	The Group Policy Client Side Extension Folder Redirection was unable to apply one or more settings because the changes must be processed before system startup or user
Warning	Sep 30, 2014 12:3...	GroupPolicy	None	1112	ASH\ST-VOLKS-10	ASH-HO... ash.local	The Group Policy Client Side Extension Folder Redirection was unable to apply one or more settings because the changes must be processed before system startup or user logon. The system will wait for Group Policy processing to finish completely before the next startup or logon for this user and this may result in slow startup and boot performance.
Warning	Sep 30, 2014 12:3...	GroupPolicy	None	1112	ASH\HOGERVORST-2	ASH-HO... ash.local	The Group Policy Client Side Extension Folder Redirection was unable to apply one or more settings because the changes must be processed before system startup or user logon. The system will wait for Group Policy processing to finish completely before the next startup or logon for this user and this may result in slow startup and boot performance.
Warning	Sep 30, 2014 12:4...	GroupPolicy	None	1112	ASH\HARSENKRABJE-2	ASH-HO... ash.local	The Group Policy Client Side Extension Folder Redirection was unable to apply one or more settings because the changes must be processed before system startup or user logon. The system will wait for Group Policy processing to finish completely before the next startup or logon for this user and this may result in slow startup and boot performance.

Figure 12.2: The Consolidated Event Log Analysis Report

11. The resulting report (see Figure 12.2) will consist of two sections - a **SUMMARY** section that provides an event type-wise count of events, and a **DETAILS** section that provides the details of events logged; these details include:
    - the event type
    - the date/time on which the event occurred
    - the event source
    - the event category
    - the event ID

- the user who is responsible for the occurrence of the event
- the system on which the event occurred
- a detailed description of the event

13

Conclusions

eG Enterprise of products has been specially designed keeping in mind the unique requirements of IT infrastructure operators. For more information on the eG family of products, please visit our web site at www.eginnovations.com.

This document has described the report generation capability of eG Enterprise.

For more details regarding the eG architecture and the details of the metrics collected by the eG agents, please refer to the following documents:

- A Virtual, Private Monitoring Solution for Multi-Domain IT Infrastructures
- Administering eG Enterprise Suite
- Monitoring using eG Enterprise Suite
- The eG Installation Guide
- The eG Measurements Manual
- The eG Quick Reference Guide
- The eG Customization Manual

We recognize that the success of any product depends on its ability to address real customer needs, and are eager to hear from you regarding requests for enhancements to the products, suggestions for modifications to the product, and feedback regarding what works and what does not. Please provide all your inputs as well as any bug reports via email to support@eginnovations.com.